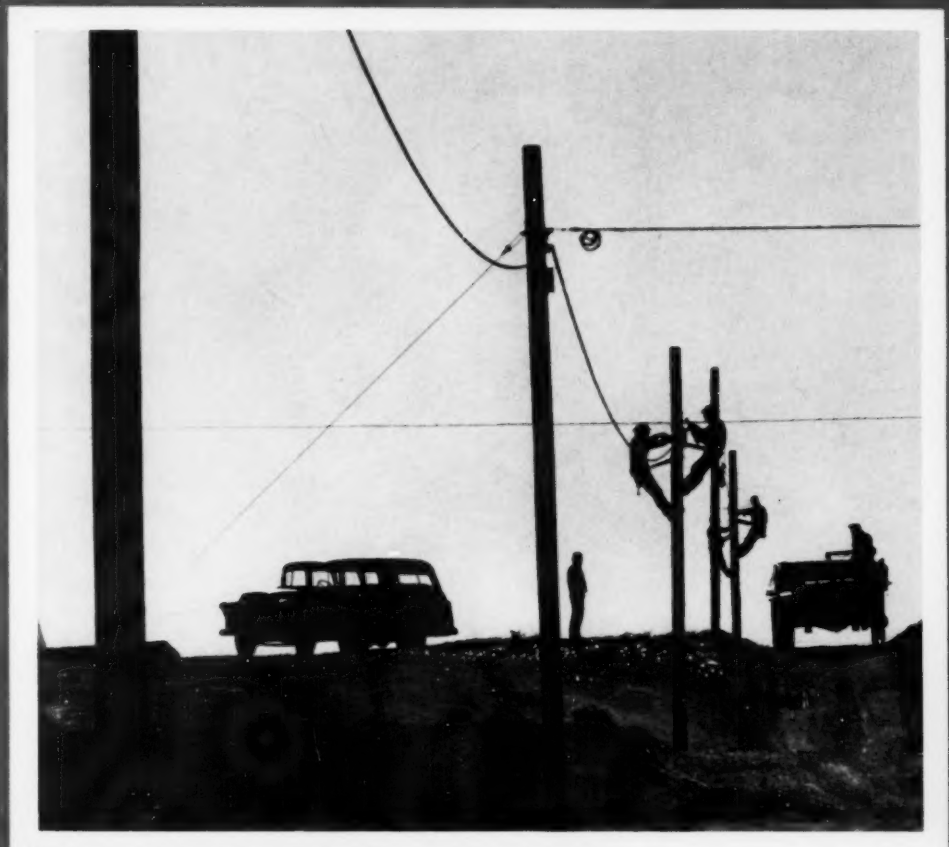
FEBRUARY 20, 1960
VOL. 158 — NO. 8

Telephony®

THE JOURNAL OF THE TELEPHONE INDUSTRY



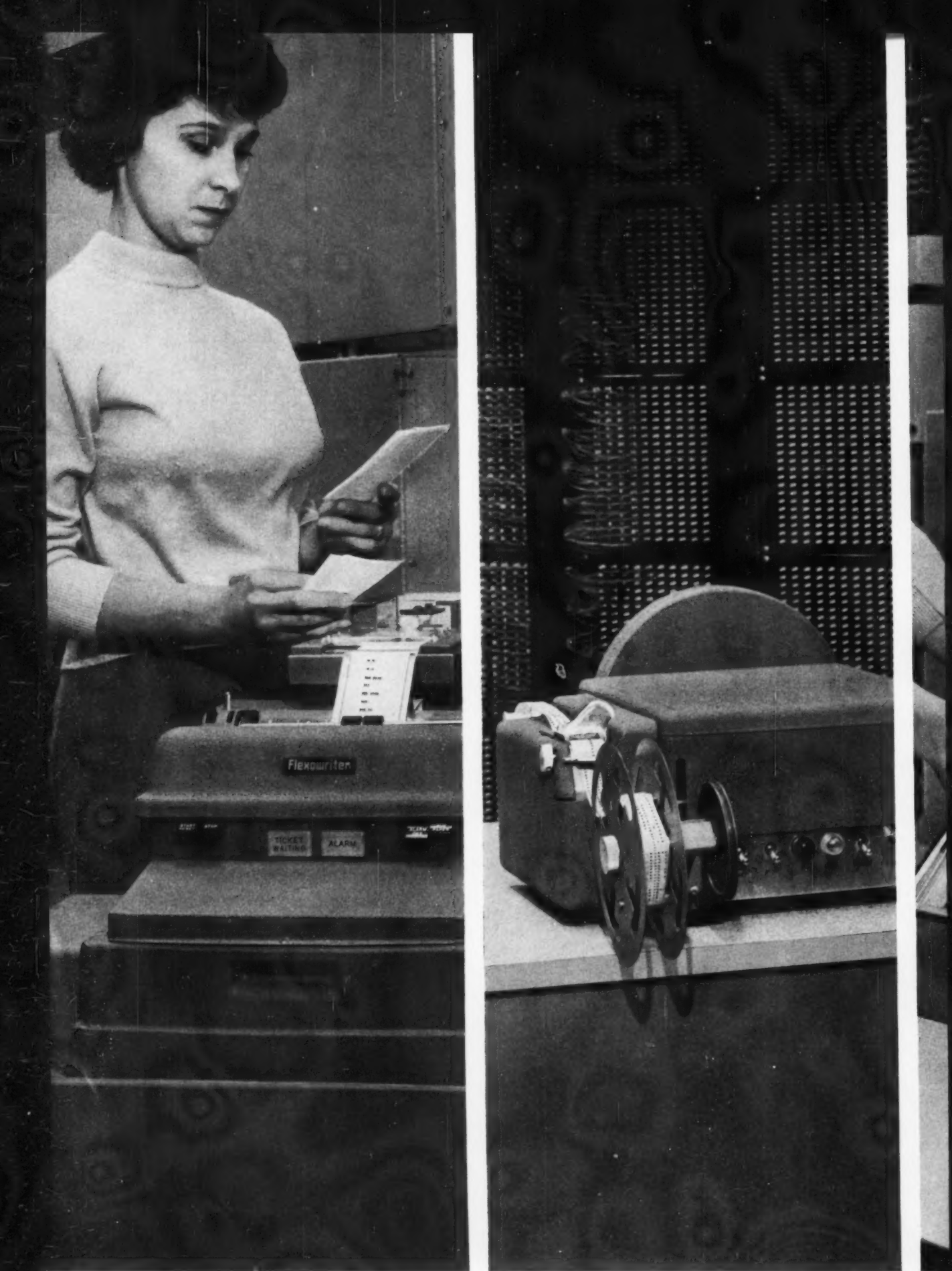
Published every week on Saturday by TELEPHONY PUBLISHING CORP. 600 S. Dearborn St., Chicago 5, Ill. Subscription $4.00 per year. Entered as second class matter at the Post Office at Chicago, Ill., under the act of Mar. 3, 1879.

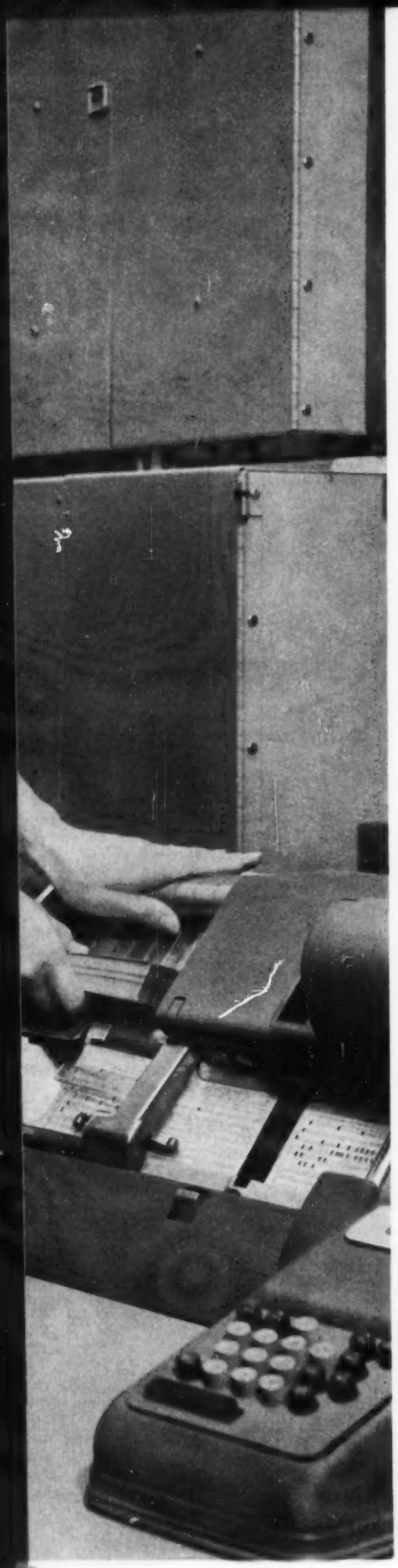
Guaranteed Circulation This Issue
13,445 of Which 12,880 Is Paid

STUDY IN SHADOWS

Silhouetted against the sky in this unusual photo are these linemen of the California Interstate Telephone Co.'s construction crew working in the Barstow, California, district.

MANAGEMENT • PLANT • TRAFFIC • COMMERCIAL • LEGAL • ACCOUNTING


Flexowriter
TICKET WAITING
ALARM



"THERE IS NOTHING FINER THAN A STROMBERG-CARLSON"

Your profit

goes up as your revenue increases with XY® Toll Ticketing

There are many reasons why your DDD profit will keep pace with growing revenue. Here are three major ones:

1. Your profit goes up because the system is fully automated . . . requires a minimum of labor to collect information to bill subscribers for toll service. No paper tapes to replenish. Billing machines are operated directly from the toll ticketing equipment.

2. Your profit goes up because of complete compatibility. Your subscribers dial directly into the nationwide system. No toll operators required to complete station-to-station calls.

3. Your profit goes up because of dependability and speed . . . combining the best features of electromechanical and electronic devices insures low maintenance with high reliability, plus high speed to handle more toll messages per day.

Get the extra revenue plus extra profit of DDD with XY Toll Ticketing. Your Stromberg-Carlson representative can give you all the facts and figures.

In Atlanta call TRinity 5-7467; in Chicago STate 2-4235; in Kansas City HArrison 1-6618; in Rochester HUbbard 2-2200; in San Francisco OXford 7-3630.

STROMBERG-CARLSON
A DIVISION OF **GENERAL DYNAMICS**

Sell the telephone

that sells itself...

Kellogg K-500

So far as Mr. and Mrs. Average Subscriber are concerned, when you say "Telephone," you're talking about a K-500 instrument . . . the telephone with a nationally known and accepted design.

Here's why it's so easy to sell Kellogg K-500s. Your subscribers are exposed to millions of dollars of advertising on the K-500 design each year. It's the telephone they know and want when they're thinking of color or extension phones . . . those extra instruments in a home that mean *extra* revenue for you!

K-500s set the industry's standards of design and performance: no other instrument has been so thoroughly tried and tested as this; no other can match it in quality and engineering.

Ask your Kellogg representative to explain all the K-500's technical advantages . . . or to help you work out a money-saving monthly shipping plan geared to your needs . . . and to show you the low-cost promotional materials available for your use.

Kellogg Switchboard and Supply Company, 6650 South Cicero Avenue, Chicago 38, Ill.
Communications Division of International Telephone and Telegraph Corporation.

KELLOGG
Communications Division of ITT
CHICAGO, ILLINOIS

Regional Offices and Warehouses:

CALIFORNIA:
23 Broderick Road, Burlingame, California,
OXford 7-5780.

GEORGIA:
1594 Southland Circle, N. W., Atlanta 18, Ga.,
SYcamore 4-2441.

ILLINOIS:
4600 So. Tripp Ave., Chicago 32, Illinois,
CLiffside 4-4300.

KANSAS:
7th & Sunshine Road, Kansas City 15, Kansas,
MAyfair 1-4418.

NEW YORK:
327 North West Street, Syracuse, N. Y.,
HArrison 2-9251.

TEXAS:
1359 Motor St., Dallas 7, Texas,
Riverside 7-5191.

EXPORT:
4600 So. Tripp Ave., Chicago 32, Illinois,
CLiffside 4-4300.

Standard desk and wall models come in 11 popular colors: aqua blue, light beige, red, green, ivory, light gray, yellow, white, rose pink, black, and sea green.

FLASHES AND PLUGS

HOME IS WHERE THE TELEPHONE IS. Barbara Madigan, a Denver (Colo.) high school student, is a busy young lady. Between attending classes every morning, working four hours in the afternoon, and doing homework in the evening, she figures that Sunday ought to be hers to rest and relax, and to go out visiting friends.

But, on one Sunday recently, according to William J. Barker, writing in the Denver *Post*, Barbara wished she had stayed home.

It seems that as a reporter for her high school newspaper, Barbara had requested an interview with the daughter of Mrs. John S. Doud, a neighbor who lives about a block away. Mrs. Doud's daughter is, of course, Mrs. Dwight D. Eisenhower.

On this fateful Sunday, the telephone rang at the Madigan's while Barbara was out, and Evelyn Gammill, a friend of the family answered it. A pleasant voice asked if Barbara Madigan were there. Mrs. Gammill said no, sorry.

The caller asked when she'd be back. Mrs. Gammill said she didn't know, but thought maybe by 6:30.

"That's too bad," said the caller. "I won't be here and I did want to talk to her. This is Mrs. Eisenhower."

"Oh," said Mrs. Gammill thinking, "Hmm. One of Barbara's teachers. Then she had a second thought and exclaimed, "Not *the* Mrs. Eisenhower?"

The Mrs. Eisenhower chuckled and admitted, yes that's who. She then went on to say that she had to be somewhat cautious about granting interviews, but Barbara's note had been so cute, she'd been charmed. Unfortunately, she had to leave soon, so she wouldn't get a chance to chat with Barbara.

When Barbara returned home, and learned that the first lady had called her, she was stunned. However, like a true newspaperwoman she's getting her story out anyway. It's called, "One Day in My Life I Should Have Stayed Home."

•

SPEAKING FOR MILLIONS. The Montreal *Gazette* reports in a recent column that a small child, asked by his teacher to name the most interesting sound in the world contributed: "The sound of a telephone when it rings."

•

ALL VINTAGE YEARS. In Los Angeles recently, the be-goggled and gauntleted members of the Horseless Carriage Club chug-chugged downtown in buggies described by the *Los Angeles Times* as "vintage automobiles" to inspect some vintage telephones at the communication center of the Pacific Telephone & Telegraph Co.

The hobbyists with their pre-1915 autos showed off their polished gas buggies, then took a tour of the communication center to see some telephones that also attest to history.

CHANGE OF ADDRESS

Please notify your local postmaster and the Circulation Department of TELEPHONY of change of address. Change cannot be made without the old as well as the new address. Allow three weeks for change of address to become effective.

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY
Since 1901

February 20, 1960

CONTENTS

IN THE NATION'S CAPITAL 19
By Francis X. Welch

1960 CONVENTION CALENDAR 20

IN PUBLICITY, IT'S INTEREST THAT COUNTS 21
By Leon F. Roberts

TRANSISTORS IN TELEPHONY, PART 2—SEMICONDUCTOR RECTIFIERS 23
By Arthur L. Albert

THE PLANT MAN'S NOTEBOOK 25
By Ray Blain

PLANT MAN'S QUIZ 26
By Ray Blain

TROUBLE CLEARING—THE FARMER AND THE TELEPHONE (SEC. IV) 27
By L. N. Martin

FORECAST 1960 UPWARD TREND FOR INTERNATIONAL INDUSTRY 29

BELL SYSTEM REPORT SHOWS EARNINGS OF $5.22 A SHARE 30

COURTS AND COMMISSIONS 32

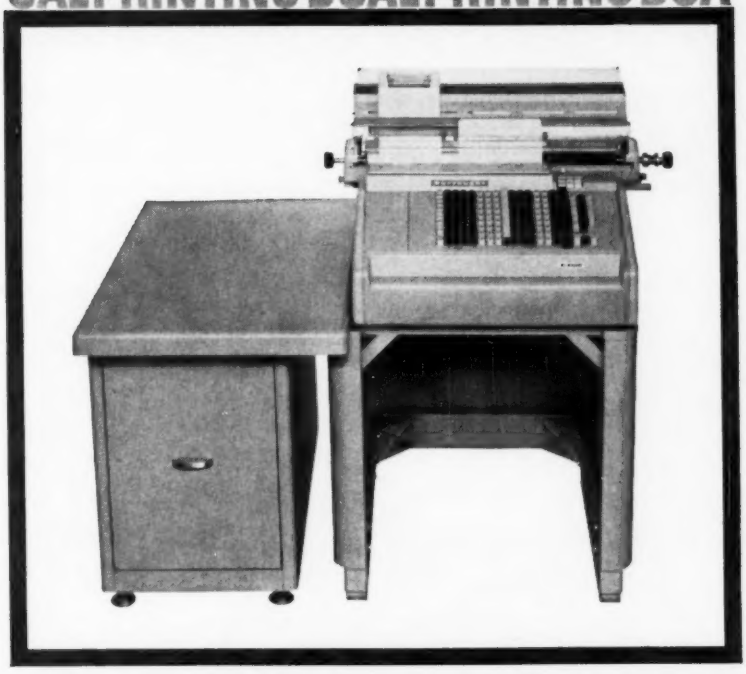
HELPFUL LITERATURE 42

H. D. FARGO JR., *President and Director of Advertising* • A. J. STULTS, *Vice President and Advertising Manager* • R. C. RENO, *Vice President and Editor* • DAN S. FARGO, *Vice President and Managing Editor* • DIANNE P. DRUCKER, *Associate Editor* • HELEN HARDIN, *Associate Editor* • FRANCIS X. WELCH, *Washington Editor* • RAY BLAIN, *Technical Editorial Director* • MAYME WORKMAN, *Traffic Editor* • VIVIAN RYDEN, *Circulation Manager*.

VAC **Circulation Audited and Verified (direct from auditor to subscriber) By Verified Audit Circulation Co.**

Published every week on Saturday by TELEPHONY PUBLISHING CORP., 608 S. Dearborn St., Chicago 5, Ill. Entered as second class matter at the Post Office at Chicago, Ill., under the act of Mar. 3, 1879. 30c per copy (except special issues—50c). Subscription $4.50, 1-year; $7.00, 2-years; $9.00, 3-years. Add $1.00 per year for postage to Canada and Pan American countries; $2.00 per year to Foreign countries. Telephone WAbash 2-2435.

PRINTING DUALPRINTING DUALPR
NTING DUALPRINTING DUALPRINT
DUALPRINTING DUALPRINTING DU
UALPRINTING DUALPRINTING DUA
PRINTING DUALPRINTING DUALPR
NTING DUALPRINTING DUALPRINT
DUALPRINTING DUALPRINTING DU
UALPRINTING DUALPRINTING DUA



NOW: GET AUTOMATION WITH DUAL PRINTING

BURROUGHS SERIES F-5000 TELEPHONE BILLING MACHINE

Here, for new efficiency, is the first fully automatic telephone billing machine with dual printing. Results: you get automatic, simultaneous printing of identical figures on two original records, such as bill and ledger or stub-bills. And you get these bonus benefits:

It's fully automatic—provides balances, plus and minus subtotals and totals, dates. Also equipped with automatic carriage position control of addition, subtraction, non-addition, subtotaling and totaling.

It's flexible—you switch from job to job at the flick of a knob. Payroll, Accounts Payable, and other special accounting records can be assigned to this machine also.

It's fast—no extra operator decisions to make, no extra keys to punch. Single motor bar operation for 90% of all entries. Complete keyboard control of error correction. Fixed limit form alignment.

See the Series F-5000 in action. Phone our nearby branch. Or write Burroughs Corporation, Burroughs Division, Detroit 32, Michigan.
Burroughs—TM

Burroughs Corporation

"NEW DIMENSIONS / in electronics and data processing systems"

MISSILES
AIR CRAFT
WEAPONS SYSTEMS
TELEPHONE EQUIPMENT

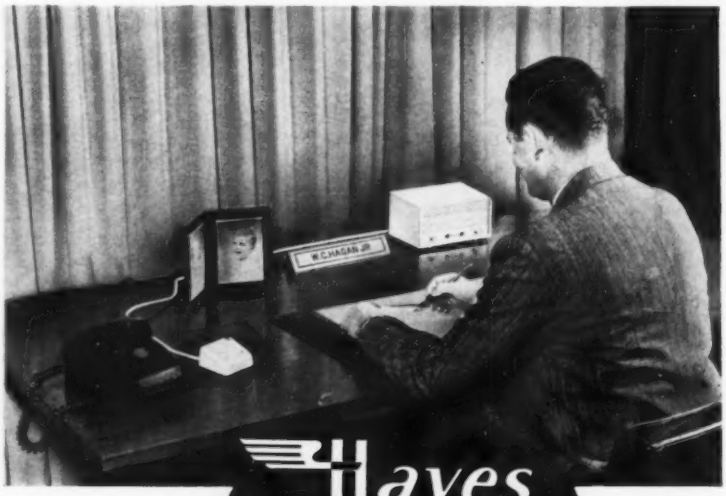
Electronic engineers at Hayes

Hayes ENGINEERS DEVELOP NEW, AUTOMATIC Loud-Speaking TELEPHONE

Hayes extensive activity in engineering and scientific research on aircraft, weapons systems and missiles provided a background of invaluable electronic experience for the design and development of the AUTOTEL. Your subscribers now can use this new electronic telephone instrument for hands-free telephoning even on long distance. Ask your major independent supplier about AUTOTEL Model 641 (available in three colors) or write or call Hayes Aircraft Corporation, or TWX BH-348.

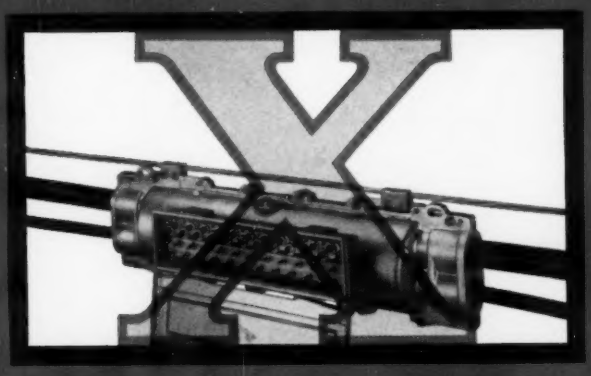
Check these features

- Feedback howl eliminated
- Natural voice reproduction
- Conference-room volume
- Automatically turns "On" and "Off"
- Fully field-tested
- Connects to any type phone
- Overcomes line loss
- Only minutes to install



Hayes
AIRCRAFT CORPORATION
BIRMINGHAM, ALABAMA

ENGINEERS...DESIGNERS...MANUFACTURERS



Now...
"X" branch splice cases

No. 17 ratchet wrench

Designed specifically for splice cases and splice case terminals. Handle length (3¾") limits the torque that can be applied to clamping bolts. Strongly recommended for use on all splice case installations.

Branch outlets on both ends

Type "X" splice cases and terminals are here, making a total of forty-two different catalog numbers in the line of Reliable splice cases and splice case terminals. Now you can straight splice, "Y" splice and "X" splice. The new type offers all the advantages of the standard models plus branch outlets on both ends of the case.

Both Protected and Unprotected "X" type splice case terminals are available for 6, 11 and 16 pair—or, two units can be used together for 12, 17, 22, 27 and 32 pair terminals. Cable size — 1" to 1.6" O.D., with Adapter available for .3" to 1".

Installation Specification No. 104 describes installation procedures for splice cases and splice case terminals. Send for yours today.

Reliable

ELECTRIC COMPANY

Franklin Park, Illinois

A Symbol of Integrity Since 1909

5 reasons why you profit

Compare the cable you're now buying with the five big benefits of Alpeth and Stalpeth from Leich. You'll see why it pays to call on Leich for your cable needs.

1. GOOD DELIVERY

from convenient General Cable plants & distributing centers

General Cable's conveniently located plants and distributing centers give you the best delivery possible on Alpeth and Stalpeth cable. In addition, Leich's experienced people check and handle each order quickly and carefully to assure satisfaction.

2. MORE CABLE FOR YOUR MONEY

with General Cable's guaranteed pairs

Only with Alpeth and Stalpeth from Leich do you get so much cable for your money. Every pair of General Cable Alpeth is guaranteed in all sizes. General Cable Stalpeth actually guarantees more pairs than *any other manufacturer* of Stalpeth. In fact, in 19 and 22 AWG all pairs are guaranteed in *all pair sizes.*

3. ECONOMICAL INSTALLATION

with lightweight Alpeth & Stalpeth

Your installation costs are cut when you use these two lightweight cables. In aerial installations you can reduce pole supports and increase span lengths. In underground systems, pulling is easy and economical.

4. CORROSION-RESISTANT SHEATHS

General Cable's Alpeth and Stalpeth polyethylene sheathed cables give you superior protection against moisture and corrosion.

5. SUPERIOR TRANSMISSION

You can be sure of superior transmission with General Cable, whether for exchange areas, toll or trunk lines. Lower capacitance unbalance values and uniform mutual capacitances will minimize crosstalk and noisy circuits.

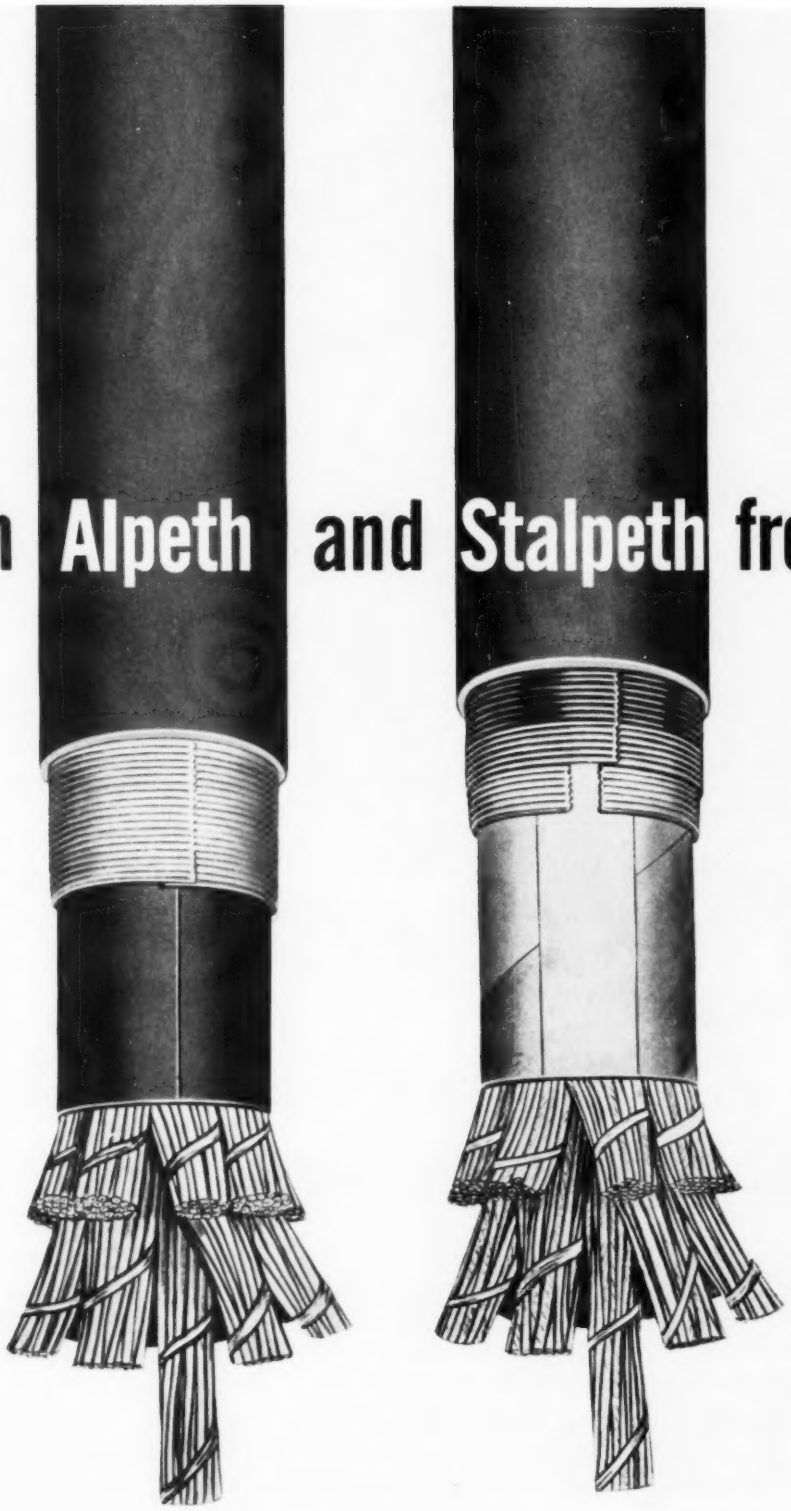
To be sure your cables give you all these benefits, order Alpeth and Stalpeth from Leich.

LEICH GENERAL SYSTEM

Subsidiary of

GENERAL TELEPHONE & ELECTRONICS

with Alpeth and Stalpeth from Leich



LEICH SALES CORPORATION • 427 WEST RANDOLPH STREET • CHICAGO 6, ILLINOIS

PACIFIC COAST: 11401 W. PICO BLVD., LOS ANGELES 64, CAL.

SOUTHWEST: 1227 SLOCUM STREET, DALLAS 7, TEXAS

EAST: 3651 CONNECTICUT AVENUE, YOUNGSTOWN, OHIO

SOUTHEAST: 5126 SOUTH LOIS ST., TAMPA 11, FLORIDA

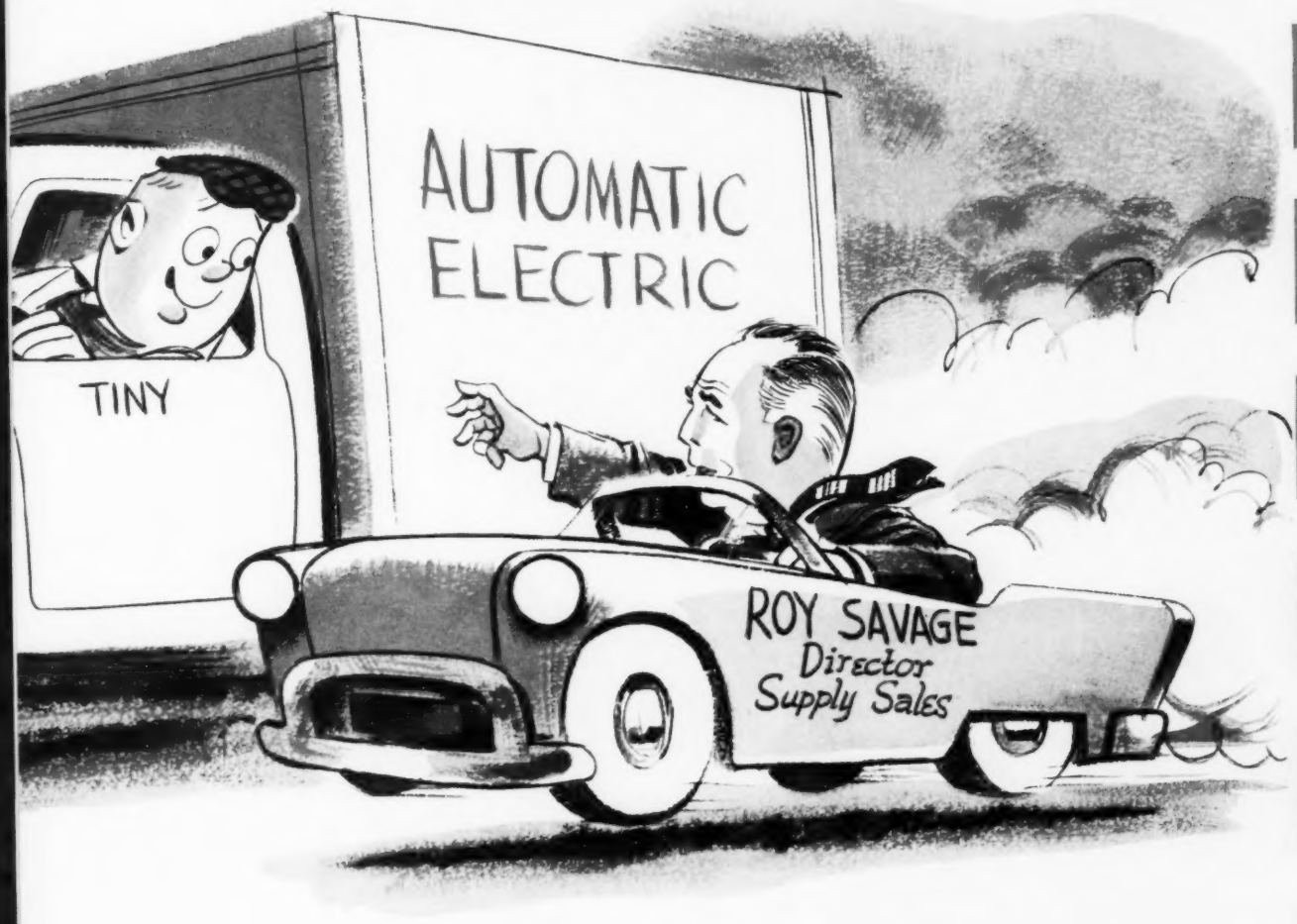
manufacturers of telephones, switchboards and related apparatus since 1907

"But, Roy, you said

AE Supply Orders must

Police escort for your supply order? To Tiny, this idea is perfectly natural. Didn't the boss *tell* him that each AE supply order must be promptly shipped? Poor Roy —if he hurries, he may be able to catch up to Tiny and explain the difference between quick delivery and ambulance service.

AE doesn't break speed laws. But, we do give prompt service on your supply order. In most cases, your order is picked from stock and shipped the same day that it arrives in our warehouse. You see, we want to do supply business with you today... and for many years to come. And, the best way that we can do this is to give you *prompt delivery* from a *large stock* of *famous brands*. Like Roy says—at AE, you get all 3.



be delivered promptly!"

warehouses:

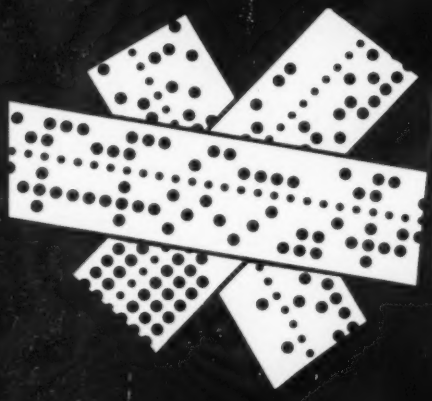
Northlake, Illinois Fillmore 5-7111	2915 Moore St. Richmond 21, Va. ELgin 8-9280	2360 N. W. Quimby St. Portland 10, Ore. CApital 3-7244	158 Corliss Avenue Johnson City, N. Y. SWarthmore 7-8507	2021 Main St. Kansas City 8, Mo. HArrison 1-7575

AUTOMATIC ELECTRIC GENERAL SYSTEM

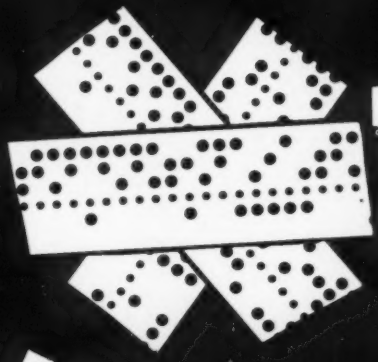
Subsidiary of

GENERAL TELEPHONE & ELECTRONICS

Only North PREMIUM AuTollizer
gives you AUTOMATIC TICKETING o



PERSON TO



THIRD

COLLECT

PERSON CALLS

NUMBER CALLS

CALLS

North PREMIUM AuTollizer is the only automatic toll ticketing equipment on the market enabling you to have automatic line identification, routing, timing, toll charge computation and ticketing of PREMIUM calls.

Additionally, North AuTollizer gives you a permanent record of every call, any idle recorder is always ready to take a call and incomplete calls are thrown out before tape is punched.

Add it all up and you have the finest automatic toll ticketing system available! Naturally it's another item of advanced telecommunications engineering from

THE DYNAMIC FORCE IN THE TELEPHONE INDUSTRY

NORTH ELECTRIC COMPANY

Galion, Ohio

NORTH

✻ EXCLUSIVE WITH NORTH

KEYSTONE Telephone Wire . . .

when and where you need it!

From many convenient locations, quality Keystone Wire is available for the needs of the telephone industry. Keystone offers a full range of Class A line wire in 50M, 85M and 135M tensile strengths. All line wires meet the specifications of A.S.T.M. and A.T.&T. and are approved by R.E.A. Your Keystone Distributor also offers a full line of galvanized bond, tie and construction wire in a full range of gauges. For quality wire—and prompt delivery—contact your nearest Keystone Telephone Wire Distributor or write direct for information.

KEYSTONE STEEL & WIRE COMPANY
Peoria 7, Illinois

British Ropes Canadian Fact., Ltd.
Vancouver, B. C., Canada

Crescent Electric Supply Company
Dubuque, Iowa
Burlington, Iowa
Cedar Rapids, Iowa
Davenport, Iowa
Madison, Wisconsin
Mason City, Iowa
Ottumwa, Iowa
Peoria, Illinois
Quincy, Illinois
Rapid City, South Dakota
Sioux City, Iowa
Sioux Falls, South Dakota
Spencer, Iowa
Sterling, Illinois
Waterloo, Iowa

Dakota Electric Supply Co.
Fargo, North Dakota

Joslyn Mfg. and Supply Co.
Birmingham, Alabama
Chicago, Illinois
Dallas, Texas
New Orleans, Louisiana
New York, New York
No. Kansas City, Missouri
Oklahoma City, Oklahoma
Omaha, Nebraska
St. Paul, Minnesota

Kingsport Electric Co., Inc.
Kingsport, Tennessee

Line Material Industries
Milwaukee 1, Wisconsin

Marshall-Wells Canadian Companies, Ltd.
Winnipeg, Manitoba, Canada

The Mine & Smelter Supply Co.
Salt Lake City, Utah

Nelson Electric Supply Co.
Dallas, Texas
Lubbock, Texas

Jack Pruzan Co.
Seattle, Washington

Southern Electrical Corp.
Chattanooga, Tennessee

Suttle Equipment Company
Chicago, Illinois
Lawrenceville, Illinois

Tennessee Valley Electric Supply Co.
Nashville, Tennessee

Wheeler Lumber Bridge & Supply Co.
Norfolk, Nebraska

KEYSTONE WIRE FOR THE TELEPHONE INDUSTRY
. . . by the makers of famous Red Brand Fence

SUTTLE SUPPLY LINES

SUTTLE — Suppliers of Equipment to Telephone Men — Since 1910

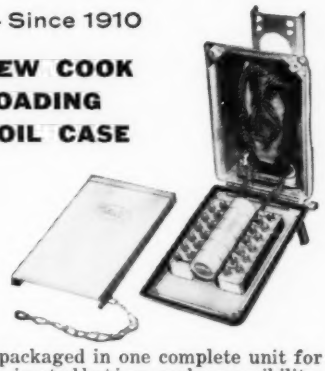
K-500 CONTROLS GIVE EQUAL TRANSMISSION

The **KELLOGG K-500** standard battery desk telephone with increased transmitting and receiving efficiency, works equally well with all classes of common battery, manual or dial service. Better speech quality is obtained through shorter handset. New improved bias or harmonic ringers provided. **SUTTLE** carries them in stock.

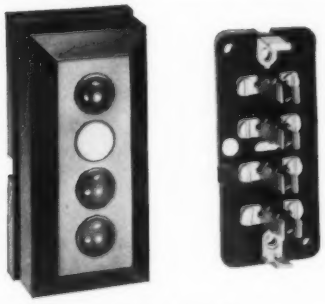
DIAMOND WIRE QUICKLY AVAILABLE

For connecting open wires together or to cable terminals, **DIAMOND WIRE** offers its neoprene covered Bridle Wire. This rubber insulated, soft tinned copper wire offers exceptional strength and holding power. The neoprene insulation is *permanently* welded to the conductor. All types of **DIAMOND** Telephone Wire are stocked by **SUTTLE** in quantity and usually can be delivered immediately. Check **SUTTLE's** prices *before* you buy!

NEW COOK LOADING COIL CASE

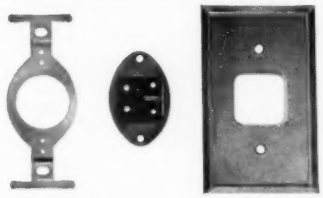


All packaged in one complete unit for easy installation and accessibility, **COOK** Loading Coils reduce attenuation, combat frequency distortion and avoid crosstalk on existing lines. 3C protector blocks assure moisture proof termination. The **COOK** Coil Case is made in 6, 11, and 16 pair and the loading coils have a nominal inductance of 88 MH. For a prompt delivery, order from **SUTTLE.**



NEW FOUR-LENS INDICATOR LIGHT

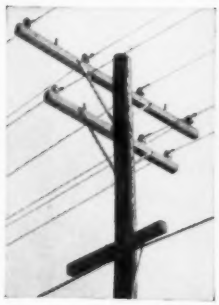
Another new W. E. equivalent product from **SUTTLE,** the SE-20B3 Indicator Light consists of two pieces; one the four lens plastic housing including white, green, red, and amber glass lamp caps; the other the plastic base with four lamp jacks designed to accept any standard switchboard lamp in 6, 12, 24, or 48 volts. Of lustrous ebony plastic, the SE-20B3 serves as an excellent visual signal where four signals in one compact unit are required. Now available from **SUTTLE** or your local distributor. Price $3.25 ea.



SE-43A Bracket $.28 ea.	SE-493-A Oval Jack $1.30 ea.	SE-19B Face Plate $.30 ea.

MODERN FLUSH OUTLET INSTALLATION

Use of the **SUTTLE** SE-493A Oval Jack with the SE-43A Bracket and SE-19B Face Plate permits flush telephone outlet installations. The SE-43A Bracket is holed to fit any standard conduit box, and is zinc-chromate plated to prevent rusting. Both ends of the SE-43A Bracket are heavily scored so that ears may be removed to fit any cover. Of non-shorting plastic materials, the SE-493A Oval Jack and SE-19B Face Plate provide a modern, attractive appearance. Both units are available from your **SUTTLE** Distributor in ivory, brown, and blue-beige colors.



ON GUARD! WITH CONTINENTAL GUARD ARMS

Do you need guard arms for cable installation in joint construction? **Continental Crossarm Co.** makes them—along with other special needs for operating telephone companies, such as dead-end arms and alley arms—some of them extra length to mount across the alley. **Continental Crossarms** meet RTA, REA, and EEI specifications. Do you have a river crossing or other long-span problem? We'll make them to your working drawing—one arm or a train load. Just send us a rough sketch with dimensions—and get fast delivery from **SUTTLE** at Lawrenceville.

For further information, specifications or quotations on these telephone supplies—write, wire or telephone

1910 50th YEAR 1960

SUTTLE EQUIPMENT CORPORATION

401 North 15th St., Lawrenceville, Illinois
Phone: Lawrenceville 782

135 S. La Salle St., Chicago 3, Illinois
Phone: DEarborn 2-3168

Manufacturers, suppliers, and printers to Telephone Men—Since 1910

* SERVING THE YELLOW PAGES FIFTY YEARS

* L. M. BERRY
AND COMPANY

MAIN OFFICES: HULMAN BUILDING • DAYTON 2, OHIO • TELEPHONE BALDWIN 4-7421

Telephone Directory Advertising Exclusively

Since 1910

IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH, WASHINGTON EDITOR
AND EDITOR, PUBLIC UTILITIES FORTNIGHTLY

Defense Department announces plan for joint long-range communications system for use by all military services. NARUC executive committee meets in Washington. Southern utility challenges IRS ruling on advertising in U. S. court.

THE DEFENSE Department on Feb. 10 announced a plan for setting up a joint long-range communications system for use by all military services. The plan immediately drew fire from all three branches of the service—the Army, Navy, and Air Force. Each of these services has traditionally operated its own communications systems. But the plan announced on Feb. 10 came from the highest level of the Defense Department.

The project is being set up under a special committee, headed by W. J. Austen, acting director of telecommunications. While the immediate effect on commercial communications operations, such as telephone companies handling Army, Navy, and Air Force business, may not change much either quantitatively or qualitatively, there are quite a few government people involved. Austen said that as many as 20,000 persons might be affected. Furthermore there was no estimate as to when actual operation might begin.

The new plan is particularly directed at overseas and long distance overland wire and radio communications. The new centralized communications service would take over the lines but not the terminal facilities which are mostly located on military bases.

Presumably the centralized communications system will continue to use regular telephone and telegraph services, leased wires, toll calls, etc., as heretofore. The main difference would seem to be an administrative shift of control from three independent communications systems—Army, Navy, and Air Force—to one over-all defense communications agency. Doubtless the object is to obtain not only more efficient and economic service but also more coordinated direction and supervision of communications operations now split up in three ways.

Michigan Gets Into Act

Out in Michigan there have been suggestions of an even more far-reaching venture by the state government into the field of communications for purposes of handling the state's own business. For the past two years, efforts have been made to get the Michigan Legislature to establish a state-owned and -operated microwave system. So far the legislature has been rather cool to the proposal, which would require a down payment in the neighborhood of a million and a half dollars to get under way. Already beset by fiscal problems—requiring, among other things, special taxes on telephone service—Michigan does not have that kind of money to throw around despite the size and importance of the state.

Oddly enough the proposal was made, or at least most of the support for it seems to come from the state highway commissioner's office, as a result of complaints made in the Michigan senate about the high telephone bills run up by the state highway department. State Highway Commissioner John C. Mackie, who is still pressing for installation of such a system, claims that it would "save" on the state's telephone toll bills.

Michigan State Sen. Elmer R. Porter (R., Blissfield) had complained of the high cost of long distance telephone calls by the state government, totaling $636,381 in the last fiscal year. The highway department, largest state agency, led the list with $141,684 in toll charges. Mackie said the federal government is willing to pay half the cost of the proposed system, but has set a June 30 deadline for acceptance of the offer. Mackie is asking the legislature for $847,000 this year for installation of radio towers around the state and $446,000 next year for radio installations in cars and in the field. The federal government appropriation to match such an expenditure is the main argument.

NARUC Committee Meeting

Early in February the NARUC (National Association of Railroad and Utilities Commissioners) executive committee held a midwinter meeting in Washington, D. C., to consider various matters and proposals of special interest to the state regulators. Just prior to the meeting, however, a special telephone committee, headed by Everett H. Krueger Jr., of the Ohio Public Utilities Commission, had its own meeting in Washington.

But the net results produced nothing startling. It was decided to take three new steps, but do nothing about a fourth question involving the Federal Communications Commission decision of last July authorizing the licensing of private microwave systems on an almost unlimited basis.

The head of the NARUC, George R. Perrine, who is also chairman of the Illinois Commerce Commission, had already asked the FCC to reconsider its July decision in the light of overall public service requirements of the "common carrier," (telephone and telegraph). The FCC has so far taken no action on this petition of reconsidera-

tion. Both Bell and Independent company groups have also asked the FCC to reconsider.

The three limited steps which the NARUC Special Telephone Committee did decide to take were mainly to continue activities already underway: First, a study of separations accounting and rate disparity between interstate and intrastate telephone rates is going forward. A special committee, headed by H. J. O'Leary of the Wisconsin commission staff, is now engaged in breaking these cost comparisons down on a state-by-state basis.

Second, a review will be continued of accounting and pricing systems of the Western Electric Co.

Third, a special staff committee was appointed to study a public relations program for the NARUC with special emphasis on press education, commissioner compensation, and publicity in general about state commissions and their work.

Lobby vs. Business Deductions

The battle which is still going on involving the right of business to petition Congress and to conduct self-protective advertising without incurring a tax penalty has been dumped into the lap of Congress. The Internal Revenue Service has washed its hands of the scrap by promulgating (this took place last September) regulations declaring that expenses for so-called "lobbying" or "propaganda advertising" related to political matters, cannot be deducted as business expense for tax purposes.

Public utility interests put on quite a battle at a two-day hearing last November at which the Internal Revenue Service had agreed to listen to further arguments. But in the light of certain Supreme Court decisions in February, 1959, (the Cammarano and Strauss cases, involving anti-prohibition publicity expenditures by liquor interests), the service decided that if any change were made in the rules, Congress would have to make it.

What actually brought this argument to a head was a letter written by Senator Kefauver (D., Tenn.) in February, 1957, to the then chief of Internal Revenue Service, Russell C. Harrington, calling attention to certain anti-public ownership advertisements by electric power and light companies.

In the present politically sensitive climate of an election year, it is quite unlikely that Congress will pick up this hot potato, although Representative Boggs (D., La.), a high ranking Democrat on the House Ways and Means Committee, has a bill that would restore to business its right to advertise in its own defense without paying a tax penalty.

More recently, however, a little-noticed court attack is building up in Shreveport, La., which may once more blow this subject wide open and make it necessary for Congress to do something about it. The case involved the Southwestern Electric Power Co., which has filed a suit in the U. S. Court of Claims for restitution of more than $15,000 paid in taxes to the federal government for a four-year period (1947 through 1950) after the Internal Revenue Service had ruled that advertising or other expenses incurred in the promotion of legislation are not deductible items. A hearing took place on Feb. 8 at Shreveport, La., before Commissioner Mastin G. White, appointed by the U. S. Court of Claims to conduct these proceedings.

The utility taxpayer won a technical point when Commissioner White refused to exclude testimony by the company's president, J. Robert Welsh, to the effect that expenses incurred by an electric utility in fighting government competition in the power business are ordinary operating expenses. The government had objected that the motivation behind the utility company's advertising was immaterial, and that the tax payments were proper if the expenses fell within the prescribed class of non-deductible items.

Commissioner White said it was valid for the company to explain its motivation. So, Welsh went on the stand to point out that the Southwestern Power Administration (a federal agency) is a competitor of Southwestern Electric Power Co. and that it was the company's right and duty to promote its own business over rival business promotions, just as it would promote electricity over other types of fuels.

Furthermore, Welsh went on to say that the government agency was not only a competitor, but an unfair competitor—one which could ultimately bring about the destruction of the privately-owned company by taking away

(Continued on page 48)

Convention Calendar

1960

Association	*Date*	*City*	*Hotel*
Louisiana	Feb. 24 and 25	New Orleans	Jung
Kentucky	Mar. 1	Lexington	Phoenix
Texas	Mar. 7 and 8	Dallas	Baker
North Dakota	Mar. 21 and 22	Fargo	Gardner
Ohio	Mar. 29 and 30	Columbus	Deshler Hilton
Iowa	Apr. 5 and 6	Des Moines	Ft. Des Moines
Nebraska	Apr. 19 and 20	Omaha	Sheraton-Fontenelle
Indiana	May 4 and 5	Indianapolis	Claypool
Wisconsin	May 10 and 11	Milwaukee	Plankinton House
Illinois	May 19 and 20	Springfield	Abraham Lincoln
Kansas-Missouri*	May 23 and 24	Kansas City	Town House
Pennsylvania	June 6 and 7	Bedford Springs	Bedford Springs
California	June 8, 9 and 10	San Francisco	Fairmont
Washington-Oregon*	June 16 and 17	Portland	Sheraton Portland
New York	June 20, 21 and 22	Schroon Lake	Scaroon Manor
Tennessee	Sept. 7 and 8	Nashville	Hermitage
Arkansas	Sept. 12 and 13	Hot Springs	Velda Rose Motel
Michigan	Sept. 12 and 13	Mackinac Island	Grand
Rocky Mountain	Sept. 14, 15 and 16	Denver	Hilton
New England	Sept. 25, 26, 27 and 28	Bretton Woods, N. H.	Mt. Washington
North Carolina	Oct. 3 and 4	Pinehurst	Carolina
USITA	Oct. 9, 10, 11 and 12	Chicago	Conrad Hilton
South Carolina	Oct. 24 and 25	Clemson	Clemson House
Oklahoma	Nov. 9 and 10	Oklahoma City	Skirvin
Georgia	Nov. 9 and 10	Atlanta	Biltmore
Florida	Nov. 28 and 29	Jacksonville	Robert Meyer

*Joint Convention

In PUBLICITY It's INTEREST That Counts

By Leon F. Roberts*

WE LIVE IN AN AGE of publicity. What people do, what they think, what they buy is influenced by publicity. Telephone companies, through the use of effective publicity, can (and many of them do) favorably influence their communities and thereby promote their own welfare.

What is publicity? How does it differ from news? News *happens*. It's a record of what's taken place. Publicity is *planned*. It is deliberately created. There is both a similarity and a difference. Publicity is news, too, but with this difference: Whereas news is generally *accidental*, publicity is *purposeful*. It is designed to influence action. In our case, it is designed to obtain good will, respect, and yes, more business for the telephone company. It is designed to enhance our reputation in the communities we serve.

It is not difficult to create publicity. The secret lies in what publicists call the *rule of interest*. The essence of the rule is that you must have something interesting to offer. The media of publicity sees no value in the routine or ordinary. They are not *interesting*. It is the odd, strange and curious—the unusual—that is interesting.

To create publicity for your company, therefore, look for the things that are outstanding, that give it strength and character. Pick out the things that make an *impression*. Demonstrate, through publicity, the individuality of your company. A telephone company is unique in any community, and there is no other business quite like it. Few businesses can provide as interesting and romantic reading as can the workings of the telephone business. Emphasize the new, the different, the odd, the unusual. These are the things that attract attention. These are what create publicity.

Five Major Areas

There are at least five major areas in which a telephone company can create publicity. Each area points to a specific method. Each method will attract attention. They are:

(1) Accomplishment—*Do Something.*
(2) Conflict—*Take a stand.*
(3) Events—*Draw a crowd.*
(4) Ballyhoo—*Beat a drum.*
(5) Pronouncement—*Say something.*

L. F. ROBERTS

Do Something

No business enterprise is ever completely finished; hence, men can never cease to work. None is perfect; there is always room for improvement. Hence, a telephone company's work is never done; there's always something to *do*. This imposes the obligation of accomplishment, and accomplishment provides a sure way to call attention to the doer. Accomplishment makes news; it's a success story. People who do things are *noticed*. No one attracts attention by doing nothing.

You can obtain a favored niche for your company not only through accomplishments *by* the telephone company but by doing something *for* the community. A host of problems besets every city, town and village. Housing, parking problems, schools, taxes, water supply—the list is endless. Helping the local chamber of commerce and your city or village officials to cope with these problems offers the telephone company the two-fold opportunity of rendering a public service and making itself better and more favorably known.

Moreover, it creates prestige and brings good-will. It earns for the utility the approval of the community, with-

*Mr. Roberts formerly was a newspaperman in his home city, Jamestown, N. Y. He gravitated into politics and twice was elected mayor of Jamestown, retiring from the office voluntarily to become commercial manager of the Jamestown Telephone Corp. Later, he was associated with various operating companies of the old Gary Group in commercial and public relations activities. For the past five years he has been director of information of the United States Independent Telephone Association at Washington, D. C.

out which it cannot grow and prosper. A community that approves of its telephone company will support it and will defend it in time of trouble. Moreover, it will be more apt to accept without violent protest any necessary increase in rates.

Take A Stand

The company that *says* nothing, like the company that *does* nothing, will also go unnoticed and unsung. A good way to create interest in your company is to have it *take a stand* when there is a divided opinion about community affairs. Because of their vulnerability to unfair criticism (engendered by the deeply ingrained bias against monopolies and sometimes fanned by an overzealous press), and because they fear reprisals, most public utilities shy away from argument and controversy as they would the plague.

But some forward-looking companies are beginning to see things in a different light and to take a stand where the occasion demands. This policy, of course, does not mean that they carry a chip on their shoulders, or go around looking for a fight. But it does mean that they feel free to express a belief in what they think to be right. A community has a right to look to telephone company management for leadership.

It is generally agreed that a telephone company should not play politics. But this does not relieve it of the obligation to study public issues and take a stand on those issues. For too many years, most corporations have taken an unfavorable view of political activity. They have held to the old aphorism "that business and politics do not mix."

Some of the larger corporations of the country, notably Ford Motor Co., have abandoned this view. The Ford Motor Co., among others, has instituted training programs in practical politics for its employes. In a recent address, Thomas R. Reid, Ford's civic and government affairs manager, said:

"Now, our business corporations must come out strongly and unmistakably in favor of political and governmental activity on the part of their employes. A vigorous, affirmative declaration of policy is essential to overcome the left-over attitudes of another era."

In our lifetime there will never be a period in which there is no conflict. There will be no time in which all our problems will be solved. Therefore, there will always be argument. We can't escape it. We cannot hide our heads in the sand. We've got to come to a *decision;* we have to stand up and be counted. The world shuns the man who vacillates. It cheers the man who stands his ground.

You can't hate a man (or a business) for fighting for what he believes. John L. Lewis, who has just retired, was never a Casper Milquetoast. No one can call him mealy-mouthed. He's a fighter and always has been in conflict. So are other labor leaders. That's why, as a rule, they are better known than the tycoons of industry. They make themselves *seen* and *heard.* On the other hand, the man of business generally dislikes a fight. He'll avoid one. He is inarticulate. He will not speak up for the system that keeps him in business.

Draw A Crowd

Less arduous than conflict as a means of creating interest is staging an *event.* Actually, more news is engineered this way than by any other. Any event that *draws a crowd* is news. Get a group of persons together—have them meet at a given place and for a common purpose—and you have a story. How good it is depends on (1) the attraction; (2) how many persons it attracts; (3) the "big names" present; and (4) what happens. The more dramatic the event, the more exciting, the more important the message, the more publicity it will get.

Plan your event carefully. Make it different from other events you have staged. Do it better than before. Choose something *unusual,* or *odd,* or *dramatic.* Whatever the event, it should be staged for a purpose. There is no merit in activity just for the sake of activity. There must be a *reason.* It must be designed to produce a benefit, or promote a cause or put over an idea. It must be in accord with company policy.

An open house is a case in point. If not adequately prepared for, if not managed properly, and if not staged in accordance with the rule of interest, an open house can be a pretty dull affair. But with imagination and verve and plenty of advance publicity, an open house can be made into an exciting and unusually interesting event. For example, one company (2,500 stations) appropriately observed its fiftieth anniversary with a week-long open house.

A huge model of a colored (red) telephone mounted on a platform and placed on the lawn in front of the building attracted attention—and customers—to the *event.* Each day, a number of long distance telephone calls were given away, together with a limited number of colored handsets. The company advertised free installation of colored telephones and extensions on orders received during the week. A number of other auxiliary services were successfully merchandized.

An attractive Facts Folder giving pertinent information and highlights of the company's activities was distributed. Hundreds of townspeople attended and, as is usually the case, they expressed amazement over the operations of a modern telephone plant. The open house anniversary celebration was a grand success, and the company is still reaping its benefits.

This event promoted a cause. It put over an idea. It created interest. It got reams of publicity and it produced benefits. Other pegs for telephone company publicity—their number is legion—include dial conversions, directory distributions, ground-breaking ceremonies, new buildings and plant additions, exhibits at fairs, floats in parades, and vital statistics dramatically reported, and anniversaries. (They offer an excellent opportunity to emphasize the company's progress through the years and its plans for the future.)

Beat A Drum

The timid will say that it is immodest to call attention to one's self. But in the world of business, modesty is not a virtue. You can build a better mousetrap, but it does not follow, in this day and age, that the world will beat a path to your door. You must *tell* the world if you want it to take notice. In other words, beat a drum. Press agents have developed a good technique. They call it ballyhoo.

Ballyhoo is a basic and simple thing. It is merely another device to attract attention. The purpose is to publicize a person, a cause, a program, an idea. It is especially effective in an appeal to the masses. They get the message easily. They get the point quickly.

Businessmen formerly frowned upon the "stunt." They deemed it beneath their dignity. But today some of them show a thorough appreciation for it. Their idea of a stunt is naturally more conservative, less "phony" than the Hollywood variety, but it is, nevertheless, a stunt.

John D. Rockefeller distributed dimes, Henry Ford sponsored a Peace Ship, and Bernard Baruch sits on a park bench. This is good showmanship. It builds reputations, spreads information, sells products. It can help sell a telephone company, too.

In ballyhoo, as in all publicity, the rule of interest should be applied. Think in terms of the unusual, or convert something usual into something unusual. A stunt can be something old done in a new way. An enterprising publicist, anxious to impress city hall, will not mail a petition. Rather, he will deliver it personally and not on ordinary stationery but on a huge

(Continued on page 44)

Transistors in Telephony

By ARTHUR L. ALBERT*

Part 2

Semiconductor Rectifiers

IN THE PRECEDING article of this series, the nature of semiconductors was considered. It was explained that, as germanium crystals are grown, p-n junctions can be formed within the material.

The electrical action at p-n junctions will be considered in this article because it is this action that makes possible the transistor.

p-n Junctions

In Fig. 2 of the preceding article (TELEPHONY, Feb. 13) a "picture" was given of a germanium crystal containing n-type germanium, p-type germanium, and pure germanium. The changeover region from p-type to n-type germanium is a junction. Whether it is a p-n junction or an n-p junction depends on how it is connected in a circuit, and how it is built into a transistor.

A junction between p-type and n-type germanium is shown in *Fig. 3*. Ordinarily, circuits are "read" from left to right; hence this is a p-n junction. If the circuits are studied from right to left, it becomes an n-p junction.

As has been explained, p-type germanium contains an excess of positive holes in the crystal structure, and n-type contains an excess of negative electrons. Because of atomic thermal agitation at room temperature the holes and electrons migrate within the germanium. As shown in *Fig. 3a* with *no* electrical connection, some positive holes have crossed the junction into the n-type material, and some negative electrons have crossed into the p-type material.

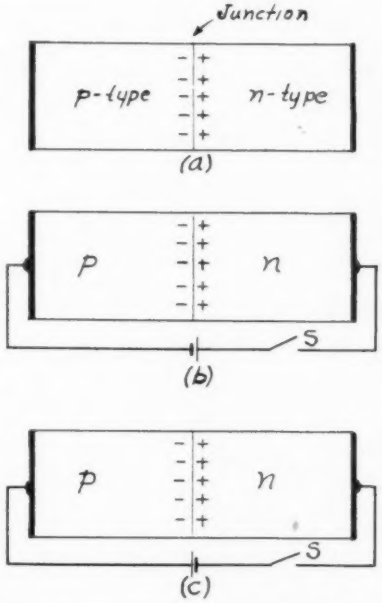


Fig. 3. At room temperature, charge migration, or diffusion, causes charge build-up as shown at a p-n junction. In (b) the battery is connected in the high-resistance direction. In (c) the battery is in the low-resistance direction. Unless the battery voltage is very low, a current-limiting resistor should be in series in (c).

These charges build up a potential difference, or voltage, across the junction. This is indicated by the "—" and "+" signs. The positive holes that have migrated into the n-type material will repel other positive holes and keep them from crossing; likewise, the negative electrons that have crossed over into the p-type region will repel electrons attempting to migrate across.

The questions immediately arise: Why don't the electrons that have migrated across the junction immediately fall into holes in the p-type material? Why don't the holes that have migrated across the junction immediately pick up electrons from the n-type germanium? Such mobile charge neutralization does occur to some extent. When it does, an equivalent charge migration across the junction can occur. Nevertheless, a difference of potential (voltage), called a potential barrier, will exist as in Fig. 3a.

The potential barrier will stop current flow across the junction, except as a charge occasionally crosses as the result of neutralization. The junction itself is *not* a line as shown for convenience in the illustrations, but is a thin layer of germanium, and this layer will largely be depleted of holes and free electrons. Thus, the resistance of the junction material is very high.

Current Flow Across Junctions

The preceding section considered action in an isolated p-n junction existing in a *single* germanium crystal. The

action occurring when the junction is connected in an electrical circuit now will be discussed.

With switch S of *Fig. 3b open*, a junction potential barrier will be established as just for the isolated crystal of Fig. 3a. When the switch is *closed*, the battery voltage also will exist across the junction. As connected in Fig. 3b, the battery voltage is of the *same* polarity as the potential barrier, and thus the battery voltage can only *strengthen* the barrier already existing. This will further inhibit charge flow across the junction; also, the material of the junction will be further depleted of holes and electrons. This action will increase the resistance of the junction. Thus, if an external voltage is applied as in Fig. 3b (with S closed), the voltage is applied in the high-resistance, or *reverse direction*.

If switch S of *Fig. 3c* is closed, the battery voltage will be applied to the junction in a direction such that the barrier potential (originally established by charge migration) largely is destroyed. The positive battery voltage will attract free electrons existing in the n-type material. These will cross the junction into the p-type. The negative battery voltage will attract holes across the junction from p-type into the n-type part of the crystal. Thus, the battery of Fig. 3c is connected in the low-resistance, or *forward direction*, and current readily flows across the junction.

Junction Rectifiers

The junction existing between p-type and n-type material in a single crystal of germanium can be used as a rectifier because it has high resistance to current flow in one direction, and low resistance to current flow in the opposite direction.

If a circuit is arranged as in *Fig. 4*, for the part of the positive half cycles that the impressed voltage exceeds the battery voltage, current readily flows around the circuit, thus charging the battery at the right. For the negative half cycles, the ac voltage will be reversed from the signs shown in Fig. 4, and negligible current will flow. In this way, a p-n junction acts as a rectifier.

The p-n germanium crystal is represented by the rectifier symbol in the upper wire of Fig. 3. The arrow head represents the p-type material, and the vertical line represents the n-type. The low-resistance direction is indicated by the direction in which the arrow head points.

Semiconductor rectifiers are widely used in telephone equipment. Examples

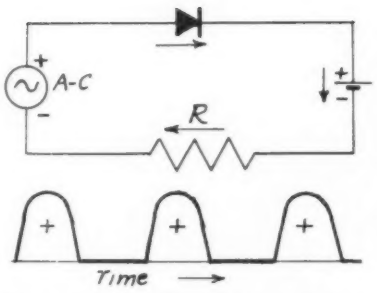


Fig. 4. A half-wave rectifier. For the positive half cycles of the impressed ac voltage, current will flow when the impressed voltage exceeds the battery voltage.

are copper-oxide rectifiers, and selenium rectifiers. These are thought to rectify because of barrier potentials.

Germanium rectifiers are finding increasing application. They are very efficient.

Consider this: If a germanium p-n junction could be made that had infinite resistance in the reverse direction, and zero resistance in the forward direction (and if no other losses occurred in it), then, theoretically, there would be no heat dissipation and hence no limit to the magnitude of the current that the junction could rectify.

Of course this never will be realized in a practical device. Nevertheless, as progress is made, the currents that can be rectified are ever increasing. Germanium rectifiers with a diffused junction of about a square centimeter will rectify hundreds of amperes under proper conditions. As mentioned at the close of the previous article, diffused junctions are formed by diffusing one substance into another at high temperature.

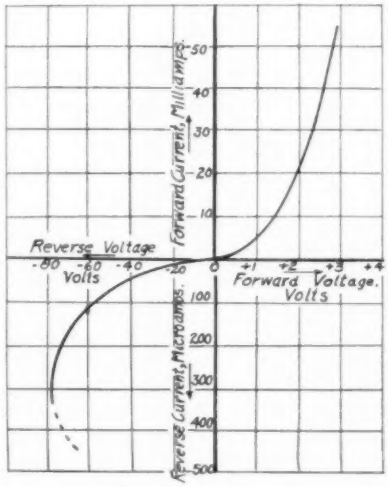


Fig. 5. Characteristics of a typical point-contact germanium diode. Note different scales for reverse voltages and currents.

Junction rectifiers have been discussed. A rectifier of another type is produced by pressing a sharp metal point on the surface of a crystal of germanium, or of silicon. A rectifier of this type was used in the early days of radio as a "cat's whisker" crystal detector. Early explanations of the rectifying action were based on current flow from a point. But, when considering atomic structure, what is a point?

Point-Contact Rectifiers

Point-contact crystal rectifiers (also called crystal diodes) were extensively studied during the years of World War II because of their wide use in radar receivers. Their operation has been better understood since about 1948 when the point-contact transistor was announced. In fact, Brattain and Bardeen were studying current flow using metal points pressed on the surface of a germanium crystal when they discovered the transistor principle.

Surface-flow phenomena were disregarded in the preceding explanation of p-n junctions. In studying point-contact devices, electric currents flowing on the surface may play an important role. However, a simplified explanation can be given using p-n junction theory.

A typical point-contact rectifier is made by pressing a sharp metal point on a crystal of n-type germanium. The contact then is formed (welded) by passing a large current of short duration through the contact in the high-resistance direction.

This raises the point contact to a very high temperature, and metal from the point diffuses into the germanium producing in effect a p-n junction. Rectifying action occurs at the junction as has been explained for a grown junction.

The characteristics of a typical point-contact germanium rectifier are shown in *Fig. 5*. Note that the device has a resistance of about 100 ohms in the forward direction, but has a resistance of about 500,000 ohms in the reverse direction. It is seen that a reverse voltage of about 80 volts can be applied before the reverse resistance starts to decrease toward breakdown, indicated by the dotted part of the curve.

Semiconductor diodes are used extensively for modulation and demodulation in carrier-telephone systems (TELEPHONY, Sept. 5 and 12, 1959).

This article has considered a single p-n junction and its use as a rectifier. In the article that follows, two junctions, and transistor action, will be discussed.

THE Plant Man's Notebook

BY RAY BLAIN, TECHNICAL EDITORIAL DIRECTOR

THE BELL LABORATORIES *Record* recently described a personal signaling system used by the Ohio Bell at Columbus. This personal signaling system is essentially an extension of the bell on a customer's telephone. A customer of this service, when absent from his home, can be signaled "selectively" to indicate that he is wanted. He may then go to any telephone and call a predetermined number to obtain the message.

In order to provide this service, a radio transmitter sends coded signals corresponding to the customer's number. These signals are picked up by a pocket-type radio receiver carried by the customer. Each receiver is tuned to be responsive to a particular code that sounds an audible signal to alert the customer.

It is understood that tests made at Columbus indicate that when customers are in automobiles and carrying a receiver of acceptable sensitivity on their person they can be signaled a distance of 3.5 miles from the transmitter. Some receivers are more sensitive and will operate over a distance of six miles when customers are in automobiles. A much greater range is possible when customers are in the open and they can be signaled a distance of about 12 miles. In some cases, customers have been signaled over a distance of 17 miles.

The signaling range in buildings has not been fully explored. However, data obtained indicate ranges from 0.5 to 8 or 9 miles may be obtained, depending on the type of building.

There is no doubt that personal signaling service will increase in both popularity and use during the next few years. It will probably provide a considerable increase in revenue for many operating companies.

•

The roadside telephone booth is on the increase throughout the country. There is little doubt that these telephones provide a real service to the automobile traveling public. Roadside signs of various design are now used to indicate that there is a telephone one mile ahead, etc.

It would seem desirable to standardize on a sign for this purpose so that it could be readily recognized by everyone anywhere. Perhaps a sign of telephone shape with a numeral on it such as 1, ½ or ¼, to indicate that a roadside telephone is available one mile or a fraction of a mile ahead, would suffice.

•

We have frequent reports as to when the phrase, "number please" began. The latest refers to a letter from J. W. Thompson, city manager for the Chicago Telephone Co., written in 1895 to one of his chief operators, which states:

"In answering calls, the query 'number please' spoken in a pleasant tone of voice with rising inflection must be invariably employed."

•

Probably none of us has the proper appreciation of modern telephone service.

The Blain family moved into its present home in 1941. Since that time, we have had only two cases of trouble on our telephone. One time the cable got wet and the other time a tree fell down and broke the drop wire.

Now that most exchange cables are pressurized, cable failures are practically a thing of the past, which is further assurance of uninterrupted telephone service.

•

We are advised by H. W. Selle, service engineer for the Stromberg-Carlson Co., that he has in his possession a plug seat switch which he removed from Whitehall, N. Y., about 1925. This switch is actuated by the cord weight when the plug is dropped into the plug seat.

Mr. Selle also mentions that in 1929 when he was wire chief for the telephone company at Panama City and Colon, a contractor installing ducts for underground cable dug up a section of the original telegraph cable which the French had laid when they were attempting to dig the Panama Canal. This cable has a copper conductor about #10 gauge with a heavy gutta percha insulation, spirally wrapped with iron wire. He still has a 6-inch piece of this cable.

Mr. Selle would be pleased to donate both items to some telephone museum where they will be preserved. Anyone interested should write him c/o the Installation Department, The Stromberg-Carlson Co., Rochester, N. Y.

•

It is noted that numerous business concerns are now listing their telephone numbers after their address on their letterheads. This is considered an excellent idea as it will permit their customers to compile a personal telephone directory and save time in placing toll calls.

Now, with DDD in the picture, it is also an excellent idea to use the area code as well as the exchange number. For example: 202-Main 5-1234.

•

While in San Francisco recently, the writer enjoyed a ride in a small army airplane to Sacramento and the Davis Radio Station. We took off from Crissy Field at the Presidio of San Francisco on a bright sunshiny morning. We headed toward the Golden Gate and then turned right and headed north. We had the Leica camera ready and this time we got some good pictures of the Golden Gate Bridge from the air.

The flight was most enjoyable, and we snapped a lot of pictures of the Sacramento River Valley and numerous irrigation projects. We were especially interested in the new Inland Waterway now under construction which will

permit ocean-going vessels to dock at Sacramento.

We returned before sunset and took some pictures of the Oakland and San Francisco area from the air. It is amazing to note in the area north of San Francisco how developers will grade and terrace big hills and then construct new dwellings in great numbers. We do not wonder, after this trip, that the telephone business is booming on the West Coast.

•

When dialing any one of the following federal government agencies in Washington, D. C., you can save time by dialing the extension number direct, thus by-passing the switchboard:

Department of Defense
Internal Revenue
Treasury Department
Lafayette Building (This is a government system which serves a total of 22 federal agencies and offices)
Department of State
General Accounting Office
Department of Agriculture

This in-dialing service has proved both popular and economical. Over 95 per cent of the incoming calls to the Department of Defense are completed by dial.

•

A recently developed tap-proof security cable system protects against surreptitious monitoring of communication channels handling classified information by telephone, closed circuit TV or wirephoto. Any attempt to tap this cable by direct contact or by induction automatically alerts guards, without "tipping off" the intruder that his activities have been detected.

•

A newly-developed soldering pencil equipped with a nylon handle and screw tips of various sizes and shape should prove extremely useful for fine soldering work in the telephone exchange. The non-breakable handle is equipped with vertical vents of a new design that keeps it cool at all times. Terminal burn-out is prevented; 50 watt-115 volt. Length 5½ inches. Weight with cord, 3 ounces.

•

A different angle of advertising was indicated by the following ad that appeared recently in the London *Times*: "Tired, bored, lazy Army officer resigning from infantry regiment. Incompetent, drinks too much, seeks employment, not too much work, London area, age 28. Looks 40."

We understand that the guy was swamped with offers.

•

Home is a place to stay whenever the car is being repaired.

Plant Man's QUIZ

By RAY BLAIN, Technical Editorial Director

Q. Will you recommend a good book on magnetism for a student just beginning the study of communications?

A. It is suggested that you consider a paper-back book of 78 pages titled: "Magnetism & Electromagnetism" which can be purchased from TELEPHONY for $1.80.

This book deals with those aspects of magnetism and electromagnetism which underline the operation of communication and industrial electronic devices.

The intent of this book, the first in a two-volume treatment of the subject, is to give attention to the major theoretical considerations of magnetism, magnetic circuits, and electromagnetism at the intermediate level.

The mathematical techniques used are simple, but extensive enough to develop in the interested reader the mastery of typical computations.

•

Q. When carrier equipment is installed on open wire lines, should any special type of lightning protection be provided?

A. REA specifications state that carrier terminal and carrier repeater equipment operating from commercial power are subject to surges originating on the power lines. It is essential, therefore, to provide surge protection on the power service and coordinate the dielectric strength of components facing the power line with the breakdown characteristics of the surge protector.

Conventional air gap lightning arresters connected between the two sides of the carrier line and ground generally are recommended for excessive voltage protection to carrier equipment. Air gap lightning arresters, however, cannot be relied upon to break down symmetrically on both sides of the line when a voltage surge is applied.

Carrier equipment that meets the inherent dielectric strength required by the carrier equipment specifications and which is protected as described should be capable of withstanding the momentary differences of across-the-line potential which may occur from non-symmetrical breakdown of the protective gaps. Special protection against non-symmetrical breakdown of protective gaps is, therefore, not required unless specified and furnished by the carrier equipment manufacturer.

Equipment chassis and protectors at terminal and repeater locations should be effectively grounded to provide a means of dissipating high voltage surges into the ground and to provide paths to the ground for fault currents to operate fuse devices for overcurrent protection.

At intermediate points where protection against lightning only is required, especially at subscribers' bridging filters (voice pass filters), bypass protection without grounds usually should be provided to obtain the maximum degree of filter protection with the minimum investment in protection.

•

Q. We note that some companies are placing a strap across the strain insulators in down guys for aerial cable. What is to be gained by this action?

A. Our thinking regarding the insulating of guys has changed considerably over the past few years. Many operating companies now prefer to ground exposed guys rather than to place insulators in them when a satisfactory ground connection can be obtained.

A satisfactory ground, and one that is now in general use, is a multi-grounded neutral power conductor. If a power conductor contacts a well-grounded cable, it will probably kick the breaker on the power system and cause less trouble than if permitted to contact poorly insulated cable. It will also be of less danger to workmen.

•

Q. When may the use of radio-telephone service be considered justified?

A. According to REA, subscribers may be served by radio-telephone in vehicles and, in some instances, at remote locations which cannot economically be served by land line facilities.

A telephone company may also, in certain cases, use radio-telephones as a tool in the construction, operation and maintenance of its plant.

TROUBLE CLEARING

The Farmer and the Telephone (Sec. IV)

By L. N. MARTIN

IN SECTION I of this discussion (TELEPHONY, May 23, 1959), we retold the story of the old rural party line which contributed so much to the happiness and welfare of the American farmer. It has become an American legend that has even been celebrated in poetry and song. Perhaps the advent of the automobile and better rural roads has lessened the need for such party-line service, but it was only a few days ago that we overheard some farm women talking in a store. They were recounting their experiences on the old party-line and while they did not condemn their new dial service, it was quite evident that they regretted the passing of the old.

We believe that the telephone industry should endeavor to return to the farmer some of the best features of the old magneto farm line. We are not attempting to engineer such a circuit. That is a job for the telephone laboratory. However we have some ideas on this subject which we would like to present. One or more of these ideas may possibly be the basis for an improved service for the farmer. On the other hand, when the improved service comes, it may be in a form of which we have never dreamed.

In designing such a circuit the engineer should remember that he is not limited to conventional methods of signaling. From the very first, the farmer's telephone was rung with 20-cycle ringing current, and bridged code ringing was usually used. When selective ringing became the vogue, frequencies in the 15-70 cycle band, pulsating current, and ac-dc came into use. Other selective systems (such as the step-up and lock-out) were tried, found wanting, and abandoned. However, this is not the only way that a farm telephone may be rung.

In our article, "The Evolution of Toll Line Ringing" (TELEPHONY, Mar. 7, 1959), we stated that 1,000-cycle ringing (interrupted at 20 cycles) is now in general use on toll lines. The advantage is that, since this frequency

PART 73. The preceding article in this series appeared in the Dec. 19, 1959 issue.

is within the voice band, it will pass through repeaters and carrier sections without any costly and troublesome ringing equipment at repeater and carrier terminals. Furthermore, the ring is amplified the same as the voice when passing through this equipment and, hence, any tandem connection that will talk will also ring.

The new electronic switching system (such as the pilot plant now being installed) uses tone ringing. While experimenting with a new rural carrier system a Bell company made an extensive field trial of tone ringing on rural lines. The reason for doing this was that tone ringing would eliminate the complicated and expensive equipment necessary to repeat the various types of selective ringing through the carrier section. The experiment was successful and was especially pleasing to the subscribers.

In tone ringing, a small loudspeaker (called a "sounder") is mounted in the telephone set, replacing the old ringer and gongs. The subscriber hears a pleasant "warbling" sound and he can adjust its volume to suit his taste.

Tone ringing makes an excellent selective ringing system, as the tuning is electrical rather than mechanical. Eight frequencies are used so that divided ringing (ringing to ground) is eliminated. We suggest that a ninth frequency be added as an emergency or general signal, and to call all parties on the line, such as we have been advocating in this discussion. This could be done by placing an additional band filter in each set which would pass the emergency signal at all stations.

We believe that tone ringing will, in time, be used on all farm lines and that it will make possible some of the improvements in rural service which we are recommending.

Switch-hook signals are ordinarily transmitted by closing and opening the direct current on a common battery line and dial signals are transmitted by timed openings in this same circuit. However, this is not the only way that these signals can be transmitted.

In toll dialing (operator or DDD) these signals and others (such as "coin collect" and "coin return") are transmitted by tones of various pitches. This method could be used on rural lines if it proved to be useful in perfecting a plan for better rural service.

Secode Corp. of San Francisco has a very interesting product which may possibly have some bearing on our subject. Its primary purpose seems to be to provide selective ringing on business private lines and mobile radio systems. Business private lines, such as those furnished by telephone companies to pipe line companies, power companies, etc., are often long and have many stations. They are usually operated magneto with code ringing.

In the Secode system each telephone includes equipment for sending and receiving dial signals. The sending equipment consists of a transistorized oscillator which generates a tone in the voice frequency band and which is powered by the same dry cells that power the transmitter. The dial sends out spurts of this tone.

The receiving apparatus is an entirely new type of step-up switch that responds to standard dial pulses rather than to the special pulses used in other systems. Also, it is interesting to note that they have anticipated our idea that a party line should have a means of ringing all stations at the same time. The Secode switch may be arranged so that when a certain number is dialed all stations will ring simultaneously.

It appears to us that this switch would not be suitable for farm lines, but the idea of transmitting dial pulses by spurts of tone generated by a

simple oscillator in a local battery talking set, may have a useful application in planning an improved rural service.

And now for a few specific suggestions:

Our first idea involves nothing new. Some farmers have built their own private lines to connect neighbors, relatives, friends, or employes. In other cases, such lines are "left over" service lines. The farmer-owned service line was quite common in the magneto days. Now when the exchange "went dial" it was impracticable for the farmers to buy new dial instruments and to bring their maintenance up to dial standards. Therefore, the telephone company built new lines with eight or 10-party fills and installed new dial telephones. The farmers were left with what was now a private line on their hands. In many cases, they found this line very useful and have kept it up.

When a group of farmers want such a line the telephone company should furnish it. The wire would be strung on existing poles. One telephone would be used for both the central office line and the private line. This would be a local battery talking, common battery signaling, key handset of latest design. There would be a key for switching the talking part of the set from one line to the other. Another key would hold the central office line while talking on the private line. The holding key would be mechanically restored when the handset was returned to its cradle. The ringer in the set would be permanently connected to the central office line, and a second unit, mounted nearby, would contain a ringer and a hand generator permanently connected to the private line. A farmer should feel quite modern with this equipment on his desk.

Our second idea involves the use of carrier. However, we have not worked out many of the details. Carrier is now used where enough subscribers to make up several lines are bunched at quite a distance from the central office. One type provides four two-way channels on one physical circuit. This takes care of five lines (one on the physical). There is a separate carrier terminal for the field end of each channel and these are pole mounted at various locations along the main lead. A physical circuit out of each terminal feeds one line. Tone ringing is used so that no ringing equipment is required at the carrier terminals.

Our idea is to use the physical circuit for a private line to serve all the subscribers on the several carrier lines who want such a service. Twenty-five stations would not be an overload for a private line. Also, the physical circuit could be divided into sections by means of high-pass filters to form two or more private lines.

Unless a private line subscriber lived along the main line this would require an extra pair of wires between his house and the main line. To eliminate these extra wires we are toying with the idea that a new type of carrier terminal could be developed—a separate terminal for each station located in the subscriber's house near his telephone. It would be fully transistorized and would not be larger than a small radio set. It would contain no relays or other equipment with moving parts. The only power required would be a few dry cells. The carrier current generated by its oscillator (which would operate only when the receiver was off) would supply the switch-hook signal and the dial would interrupt the carrier current, or shift its frequency. Tone ringing would be used.

We realize that there would be many problems to be ironed out in designing such a unit, but we believe that this can be done and that this set could be produced in quantities at a price comparable to that of a small transistorized radio.

We got our third idea from a scheme that was sometimes used in small magneto exchanges if the exchange had metallic circuits. We have in mind a certain 50-line magneto board installed in a residence. In such an office the traffic does not justify keeping an operator sitting at the board at all times. The operator was also a housewife. She would turn on the night alarm and go about her house work. Now this exchange had many rural lines and many times a day the operator would rush to the board only to find that the subscribers were calling each other on the line.

The remedy was simple. The switchboard line drop was connected between the ring side of the line and ground instead of across the tip and ring. Ringing on the line would no longer throw the drop and the farmers could use the line all they pleased without disturbing the operator. Each telephone was provided with a push button which, when depressed, transferred the tip side of the generator from the tip of the line to ground. By holding this button down while he rang, the subscriber could ring the operator, and incidentally, he would not ring the other parties on the line. Could this scheme be used on a dial line?

Suppose we open the tip side of the line relay at the central office. Removing a receiver will no longer operate the line relay. The line is not busied at the switchboard and if they have some means of calling each other, the farmers could use the line all they pleased (the telephones would have to be local battery talking). To dial a call through the central office a push button would be provided which, when depressed, would ground the ring side of the line. When a farmer heard dial tone he would release the button.

How would subscribers using the line locally know that there was a call through the dial board for someone on that line? Since the line relay would not be operated the line would not test busy and would be seized by the connector switch (or equivalent). With a regular tripping circuit, the receivers off would trip the ring before it started. However, some type of reverting call circuits are so arranged that on encountering a receiver-off condition they will hold the ring in abeyance until all receivers are restored. Ringing will then start and will be tripped when a receiver is again removed.

We will now add one more feature to this circuit. When a connector seizes a line which is in use locally it will send out a distinctive tone signal which will inform the talkers that: "Central wants the line." Just to add a Rube Goldberg touch we might make this tone signal so loud and disagreeable that the talkers would gladly give up the line. The foregoing idea is so simple and inexpensive that we wonder if there is something radically wrong with it.

Our final idea is somewhat revolutionary as it involves a new kind of rural service. A small manual office is uneconomical from the traffic standpoint. The operation of the little one-position office finally became almost impossible and, for that reason, such offices were among the first to be converted to dial. In dial operation this

(Continued on page 48)

Forecast 1960 Upward Trend For International Industry

THE 1960 outlook for the international communications industry is favorable and gross revenues should continue their upward trend, the Business & Defense Services Administration, U. S. Department of Commerce, reported recently. International telephone revenue should approach 29 million dollars for 1959, and revenues in 1960 should exceed 31 million dollars. The principal carriers in the telegraph industry expect international revenues in excess of 83½ million dollars for 1959. The projection for 1960 is 86 million dollars.

The substantial increases in international telephone and telegraph communications are attributable, the BDSA says, to several factors. Operating revenues in 1959 reflect the first full year of traffic after the recession. Rate increases in the international telegraph industry and an increasing utilization of Telex and leased circuits are of importance. The second transatlantic telephone cable went into operation in September and other cables are now in various stages of development.

The overseas communications industry also faces a more stable international situation than in previous years. This factor, coupled with the leveling off in the decline of U. S. dollar value in certain foreign currencies, should reflect favorably in 1960 revenues.

Continued growth in overseas telephone service should result in revenues of $28,958,000 in 1959. Gross operating revenues, including associated land-line charges, from 1950 through 1958 (Source: Federal Communications Commission) and projections for 1959 and 1960 are as follows:

Year	*Revenue (Thousands)*
1950	$ 8,198
1951	9,831
1952	10,010
1953	10,919
1954	11,440
1955	13,001
1956	15,802
1957	22,679
1958	27,841
1959	28,958
1960	31,000

The big increase from 1956 to 1959 is primarily because of the expanding use of submarine cables. Improved international relations lead to increasing confidence on the part of overseas carriers. The result, the BDSA indicated in their report, is reflected in large capital outlays for transoceanic cables. Four of these cables have gone into service since September 1956. The first provided direct communication with London; another provided service between Washington and Alaska; and the third consisted of twin cables from California to Hawaii. In September 1959, the second transatlantic cable began operation with 36 voice circuits.

The latest undersea cables are more reliable and have a greater capacity than those of the past. Fidelity and continuity of transmission are made possible by the use of precision repeaters at 40 mile intervals across the length of the cable. Capital investment for these cables is high, but they are relatively maintenance-free and result in more efficient service.

Turning to the telegraph industry, the report stated that gross operating revenues of the principal ocean cable and radiotelegraph carriers in the international industry are expected to reach $83,581,000 for 1959. The reported figures include revenues from telegraph messages, leased circuits, international teletypewriter exchanges, international metered communication services, radiophoto, program transmission, and marine radiotelegraph service. The gross revenues of the principal international radiotelegraph and ocean cable companies from 1950 thru 1958 (Source: Federal Communications Commission) and projections for 1959 and 1960 are as follows:

Year	*Revenue (Thousands)*
1950	$50,333
1951	56,949
1952	57,606
1953	59,727
1954	63,811
1955	68,050
1956	73,472
1957	76,845
1958	77,281
1959	83,581
1960	86,000

Revenues for 1959 reflect operations in the first full year after recovery from the recession. This was also the first full year of operations after the international telegraph rate increase, which was granted in 1958. An additional rate increase was granted this year for marine radiotelegraph service.

Major carriers report increases in the use of Telex and leased circuits. This is a growing source of revenue and the BDSA predicts it should continue as a favorable element.

Investment in communications plant and equipment of the principal international telegraph carriers increased from $139,818,000 in 1956 to $154,439,000 in 1958, according to the Federal Communications Commission as shown below:

Year	*Amount (Thousands)*
1950	$136,168
1951	127,310
1952	127,101
1953	131,168
1954	133,667
1955	135,178
1956	139,818
1957	149,439
1958	154,439

Looking ahead for 1960, the BDSA says gross operating revenue of the international telephone industry should exceed 31 million dollars in 1960. The Puerto Rican telephone cable is scheduled for operation in early 1960.

This cable will utilize 48 channels and have terminal points at West Palm Beach, Fla., and San Juan, Puerto Rico. Total cost is estimated at 17 million dollars. A proposal is under study for a Hawaii-Japan submarine cable. Plans call for a hundred voice circuit and a target date of mid-1960 for beginning construction. Other Far East cables are under consideration because of the increasing trade with that area.

Operating revenues in the international telegraph industry should approach 86 million dollars in 1960. Various rate increases have aided this segment of the industry and the international climate should remain favorable.

Congressional hearings on the permissive merger of international telegraph and marine carriers were held throughout most of 1959. This legislation was endorsed by the Federal Communications Commission and the Department of Defense, but strong opposition came from the Department of Justice. The committee's work was scheduled to resume in January when efforts were to be directed toward the submission of the proposal to the Senate during the 1960 session.

Labor Is Vital

"Labor is prior to, and independent of, capital. Capital is only the fruit of labor, and could never have existed if labor had not first existed. Labor is the superior of capital, and deserves much the higher consideration."—ABRAHAM LINCOLN, *Message to Congress, 1861.*

Bell System Report Shows Earnings of $5.22 A Share

A RECORD gain in telephones, better service and improved earnings made 1959 "a good year for the Bell System," Frederick R. Kappel, president of the American Telephone & Telegraph Co., said in his annual report to shareowners released on Feb. 16.

The report went to some 1,737,000 share owners—up about 107,000 from 1958.

Mr. Kappel said the accomplishments reflected the efforts of Bell System people (729,000 of them) to devise and market services to fully satisfy individual needs and preferences, increase efficiency and "gain wider public understanding that good profits are as necessary to good performance in our business as they are in any other."

Earnings were $5.22 a share, compared with $4.67 a share in 1958.

Net gain in telephones was 3,298,000 —topping the previous high of 3,264,000 set in 1946.

For the fourth consecutive year, the Bell System spent more than 2 billion dollars on new construction to expand and improve telephone service. The 1959 figure was 2¼ billion dollars.

To help finance this program, the system obtained about 750 million dollars of new capital, largely from the sale of bonds. Interest rates ranged from 4⅜ to 5¾ per cent.

"High interest rates are only one aspect of rising costs," Mr. Kappel said. "Taxes, already heavy, climbed farther in 1959. So did wages, which are the largest cost factor in the business."

Taxes on Bell System service last year averaged $3.39 per telephone per month.

"Federal, state and local taxes on operations were $1,690,289,000, equal to $7.66 per share of AT&T stock, or considerably more than the earnings per share of $5.22," Mr. Kappel pointed out. In addition, telephone users paid directly some $600 million in Federal excise taxes. "Telephone excise taxes are unjust and discriminatory and should be eliminated completely," Mr. Kappel said.

The year's record gain in telephones brought the Bell System total to nearly 58 million—96 per cent dial-operated. Some 15 million telephone subscribers (nearly twice as many as a year ago) now dial long distance calls to points all over the country.

"Telephone service has never been so fast, convenient and dependable as it is today," Mr. Kappel said. In detailing servicing achievements for the year he cited:

Overseas Service—A second transatlantic telephone cable system opened in September. A cable to Puerto Rico went into service in January. One to Bermuda is planned and preliminary work has started on one to Japan and other Pacific points. Overseas calls rose 15 per cent in 1959.

Business Service—Further advances were made in data transmission, such as with Data-Phone. This service enables machines to talk to machines, using the same network over which people talk with people. Connections are put through just as telephone calls are.

Private branch exchanges of several more large subscribers (including the Pentagon) were arranged so callers could dial individual extensions without going through a switchboard.

A new system for private long distance telephone line subscribers was developed, allowing each telephone to call any other (up to about 80) with only two pulls of the dial. Speakerphones were improved.

Residence Service—The system's newest telephone, the compact "Princess," was introduced in four states, with excellent subscriber response. The set will be ready for general introduction throughout the country in the latter part of 1960.

Trials of new home and farm intercommunications systems were completed. A new ringer that sounds a pleasant chime or a low or loud bell, as the subscriber prefers, also moved into the production stage. "Hearability" on long distance calls improved.

Research—Work went ahead on installation of the experimental, transistorized Electronic Central Office—first in the world—at Morris, Ill. Bell Laboratories engineers are now testing the equipment and the first connection with the lines of telephone users will be made in the summer of 1960.

The trial at Morris will provide experience and knowledge required for development and production of a system for wide-spread use. The latter will make possible a wide variety of optional service features.

Defense—Western Electric continued to coordinate work on the SAGE (Semi-Automatic Ground Environment) air defense system and also completed the Aleutian segment of the DEW (Distant Early Warning) Line and went ahead with an eastward extension across Greenland. Bell Telephone Laboratories takes part with Western Electric in these projects, and, in establishing communications for the Air Force's Ballistic Missile Early Warning System (BMEWS).

As a first step in research in space communications, Bell Laboratories is working with the National Aeronautics and Space Administration and its Jet Propulsion Laboratory, operated by the California Institute of Technology, on "Project Echo," which will study the possibilities of communicating by means of radio microwaves reflected from a satellite.

In "Project Mercury," the nation's undertaking to put a man into orbit in space, Western Electric is leader of an industrial team, including Bell Laboratories, which has major responsibilities to establish a world-wide network for communicating with the space capsule.

Looking ahead, Mr. Kappel said that two words, "growth and change," characterize the telephone job of the future.

"New instruments and systems are giving our subscribers many service options at varying prices," he said. "These optional features compete for the subscriber's dollar with all kinds of household and office conveniences. More and more, we in the telephone business are competitive marketers. We must vigorously and intelligently sell our wares. We must price them to sell, but price them also to produce profits consistent with the business risk.

He noted non-regulated companies' ability to increase their earnings in keeping with their greater investment in terms of today's dollars and added:

"The telephone companies' physical plant and facilities, too, are worth more in current dollars than they cost in dollars of the past. Yet many commissions today give small recognition to this in fixing telephone rates, and generally limit earnings to a stated return on the original cost of the properties, less depreciation.

"We are therefore urging the commissions, in their consideration of telephone earnings, to give much more weight to the shrinking value of the dollar."

AT&T has made the report available in Braille and on talking records for shareowners who are blind. Copies will be distributed with the assistance of the Telephone Pioneers of America which is active in work for the blind.

It's Your Neck!

"Mr. Elephant, won't you please raise your foot? You are standing right on top of me," pleaded a wee ant.

"What an ungrateful person you are," rumbled the elephant. "Don't you realize that none of your enemies can get at you as long as you are under my foot?"

"Get off," stormed the ant. "If standing on my neck is your idea of protection, I can get along without it."—W. E. Maclaren in *The Freeman*.

BARTLETT

More than 13 years ago Bartlett successfully pioneered the use of the helicopter for shade tree spraying—an operation that was to lead the way, a few years later, to a new efficient method of control of woody plants along utility rights-of-way.

At first, difficult terrains presented unusual problems but gradually through research and experience, new equipment was developed and new herbicides and techniques perfected to overcome them. Today, Bartlett research in this important field is carried on continuously through college fellowships and at the Bartlett Research Laboratories.

If your right-of-way clearance, line trimming, brush control or tree survey requirements present a problem, we invite you to share our years of experience. This service is now available from Maine to Florida, and west to Illinois and Alabama.

The Bartlett Way

BARTLETT TREE EXPERTS

Home Office, 2770 Summer Street, Stamford, Conn.
Research Laboratories and Experimental Grounds, Stamford, Conn.
Bartlett School of Tree Surgery, Stamford, Conn.

Courts and Commissions

Approve REA Funds, Raise To New Georgia Company

The Georgia Public Service Commission on Jan. 14 gave permission to the Gold Leaf Telephone Co., a new corporation, to borrow $1,685,000 from the Rural Electrification Administration and to purchase eight exchanges of Consolidated Telephone Co., Inc., Moultrie, the parent company.

The exchanges are Lakeland, Ray City, Boston, Coolidge, Hahira, Meigs, Morven and Pavo. The Gold Leaf company also will acquire toll lines between Morven and Hahira, Hahira and Ray City, Ray City and Lakeland. With the aid of the REA loan, the company will be able to improve and expand these facilities to serve 3,912 subscribers.

In discussing the REA loan, the commission had this to say about "minimum cash flow" and "common equity ratios":

"It is generally recognized that a certain minimum cash flow is necessary to provide reasonable assurance that a borrower will be financially able to meet the interest payments and debt retirement provisions of the loan contract.

"These minimum cash flows are usually obtained for utilities in the normal rate making process when the utility's earnings are based on its cost of capital funds. This is true due to the fact that rather close control is maintained over the capital ratios of the utilities in most jurisdictions. Such regulatory control generally results in common equity ratios in the range of 30 per cent and seldom less than 20 per cent.

"Therefore, if reasonable earnings are provided on this equity capital, cash flows in sufficient amount to satisfy the minimum requirements of the holders of such senior capital as may be outstanding, are provided almost automatically."

However, in regard to the Gold Leaf Telephone Co., the commission stated:

"In the matter presently before us, however, such is not the case. Here we have a company with a total capitalization of approximately 1.7 million dollars, of which only $200 is represented by equity investment, the balance consisting of first mortgage funds provided by REA.

"To provide net utility earnings derived by means of the normally acceptable cost of capital approach falls far short of providing the minimum cash flow deemed necessary to provide reasonable assurance to the mortgagee that the company will be able to meet the requirements of the mortgage indenture.

"On the other hand, to provide earnings sufficient to produce an acceptable cash flow level results in earnings for the equity investment completely beyond the farthest reaches of the often referred to range of reasonableness."

The commission went on to say that the answer to this problem lies with the effect the proposed rebuilding and reconstruction program will have on the public. The commission criticized service conditions existing in the various exchanges involved and stated that the Consolidated company had failed to make service improvements ordered by the commission in October 1955.

The PSC further stated:

"It appears that the program now contemplated is the only hope of ever providing modern dial service to this area. Therefore, we shall approve rates for these exchanges at a level sufficient to meet what are deemed to be the minimum cash flow requirements for this project.

"However, though Congress intended that REA funds be used to provide modern dial telephone service in the rural areas which would be otherwise not economically feasible through normal financial sources in the manner contemplated herein, we find no indication that it was their intention that the REA program should result in windfall profits to the borrower.

"We shall therefore provide for certain restrictions on the surplus accumulations of the company to assure that these earnings, which are in reality capital contributions by the subscribers to guarantee the soundness of the loan, are retained in the company for the benefit of the subscribers of these exchanges and are not withdrawn by means of dividend payments to the present company for use by said parent to improve the known weaknesses in its cash position."

Present, proposed and approved rates (effective on completion of the expansion and rehabilitation program) are as follows:

Pavo, Boston, Coolidge and Morven:	*Present*	*Proposed*	*Approved*
One-party business	$4.00	$7.00	$6.75
Two-party business	3.25	6.00	5.75
Four-party business	2.50	5.75	5.00
One-party residence	2.75	4.50	4.25
Two-party residence	2.25	3.75	3.50
Four-party residence	1.75	3.25	3.00
Multi-party rural business	3.50	5.50	5.25
Multi-party rural residence	2.75	3.50	3.50

Present rates for Ray City are the same as those for Pavo, Boston, Coolidge and Morven. Proposed and approved rates for Lakeland and Ray City are as follows:

	Proposed	*Approved*
One-party business	$7.50	$7.25
Two-party business	6.50	6.25
Four-party business	6.00	5.25
One-party residence	4.75	4.50
Two-party residence	4.00	3.75
Four-party residence	3.50	3.25
Multi-party rural business	6.00	5.50
Multi-party rural residence	3.75	3.75

Present rates for Hahira and Lakeland are as follows:

One-party business	$4.25
Two-party business	3.50
Four-party business	2.75
One-party residence	3.00
Two-party residence	2.50
Four-party residence	2.00
Multi-party rural business	3.50
Multi-party rural residence	2.75

Proposed and approved rates for Hahira and Meigs are the same as those for Boston, Coolidge, Morven and Pavo.

Present rates for Meigs are as follows:

One-party business	$5.00
Two-party business	4.00
Four-party business	3.00
One-party residence	3.25
Two-party residence	2.75
Four-party residence	2.25
Multi-party rural business	3.50
Multi-party rural residence	2.75

Independent Tel. Buys One N. Y., Three Mich., Companies

The common stock of the Caroline Farmers Telephone Co., Inc., Slaterville Springs, N. Y., was sold on Jan. 20 to William B. Harrison, president of the Independent Telephone Corp., Dryden, N. Y. The Caroline Farmers company

Broadest battery line is Exide... choose the one best suited to your own application

Exide-Tytex Batteries with Calcium Grids were chosen by Northern Ohio Telephone Company for this exchange at Medina, Ohio. Only Exide offers the unique combination of calcium grids with Exide-Tytex construction.

Choosing your battery is the sensible way to buy. That way you're sure of meeting your particular requirements best. And Exide offers you the broadest choice. Exide-Manchex, unique lead button positive plate battery, is unmatched for long life. Exide-Tytex pasted plate batteries are available with Silvium corrosion resistant grids or with calcium alloy grids. All come in a wide range of capacities to cover all applications. And in every case you are sure of getting Exide quality and value. Full line of rectifier and motor-generator chargers available to cover any application requirements.

Write for the new illustrated brochure giving complete information on Exide stationary batteries. Exide Industrial Division, The Electric Storage Battery Company, Philadelphia 20, Pa.

Exide®

thus becomes an affiliate of Independent Telephone Corp.

A complete modernization program is planned for Caroline Farmers and is to be completed within two years.

The Moore Telephone System, Inc., Caro, Mich., on June 1, 1959, was acquired by the Independent Telephone Corp.

In transactions this year, the Independent company has also acquired more than 80 per cent of the stock of the Northern Telephone Co., Hale, Mich.; and on Jan. 28, acquired all common stock of the Lake City Telephone Co., Lake City, Mich.

The Moore, Northern and Lake City companies are operating as separate subsidiaries of Independent.

Mich. Company Reports Name Change, Expansion Plans

The Calhoun County Telephone Co., Homer, Mich., has changed its name to the Calhoun Telephone Co., according to an announcement by Joe Stravers, manager.

The Calhoun Telephone Co. serves more than 3,300 subscribers through its Addison, Homer and Tekonsha exchanges.

During the past four years, the company's owners have spent more than $650,000 in improving its facilities and in converting the system from manual to dial service.

Mr. Stravers also announced that the company plans, during the next five years, to invest nearly $700,000 in improving and expanding services at its three exchanges.

Ohio Company Granted $316,700 Rate Increase

The Ohio Central Telephone Corp., Wooster, has been granted a $316,700 rate increase by the Ohio Public Utilities Commission, it was reported on Feb. 1 (TELEPHONY, July 19, 1958).

In its original application on July 8, 1958, the company had requested $479,405. The Ohio Central company serves 50,659 subscribers in 33 communities.

Ask Ill. Financing Approval

The Inland Telephone Co., Champaign, on Jan. 27 filed an application with the Illinois Commerce Commission for authority to issue $146,000 of first mortgage notes.

Seek to Serve Kan. Areas

The Kansas Corporation Commission on Feb. 16 was to have heard the application of the Blue Valley Telephone Exchange, a corporation, to serve the areas of Oketa, Home City, Summerfield, Vermillion, Centralia, and Wheaton. The Centralia Telephone Exchange is asking the commission to permit it to cease operation.

Three sidewalks skirting the 12-million-dollar Southern New England Telephone Co.'s new general office building in New Haven, Conn., have been equipped with an automatic snow melting system to keep pavement clear of ice and snow. Covering an area of 9,100 square feet, including entrances to the building, the ¾-inch-diameter snow melting grids were laid on 12-inch centers, then enclosed in 5 inches of concrete—3 inches above pipe and one inch below. The system was hydrostatically tested six hours under 125 pounds of pressure. In operation, it will convey a mixture of ethylene glycol and hot water. Wrought iron pipe was used in the melting system and also in the company's new office building for steam condensate return lines, and the exhaust system for the auxiliary emergency generator.

Mich. PSC Rules Can Keep Foreign Service Despite EAS

The Michigan Public Service Commission on Jan. 27 ruled that subscribers, who have foreign exchange service in areas where extended area service is already established, may retain their foreign exchange service.

The ruling came in the case of 82 Lansing subscribers who wanted to keep their Michigan Bell Telephone Co. foreign exchange service, although General Telephone Co. of Michigan is providing EAS in their areas.

The General company had asked that these subscribers be switched to General service.

The commission ruled that in all future cases General's request is granted. The order also stated that retention of foreign exchange service cannot be transferred if a present subscriber changes residences.

Purchase Iowa Exchange

The Iowa State Telephone Co., Centerville, has purchased the Farmer's Telephone Exchange, Maloy.

S. D. PUC Rejects NW Bell's Raise Request for 2nd Time

The South Dakota Public Utilities Commission for the second time has rejected a request by the Northwestern Bell Telephone Co. for a $500,000 rate increase (TELEPHONY, Oct. 17, 1959).

The increase would have given the company a 5.9 per cent return as authorized by the commission in an earlier order dated Oct. 18, 1957. Without the raise, the company has a 5.7 per cent return, the commission determined.

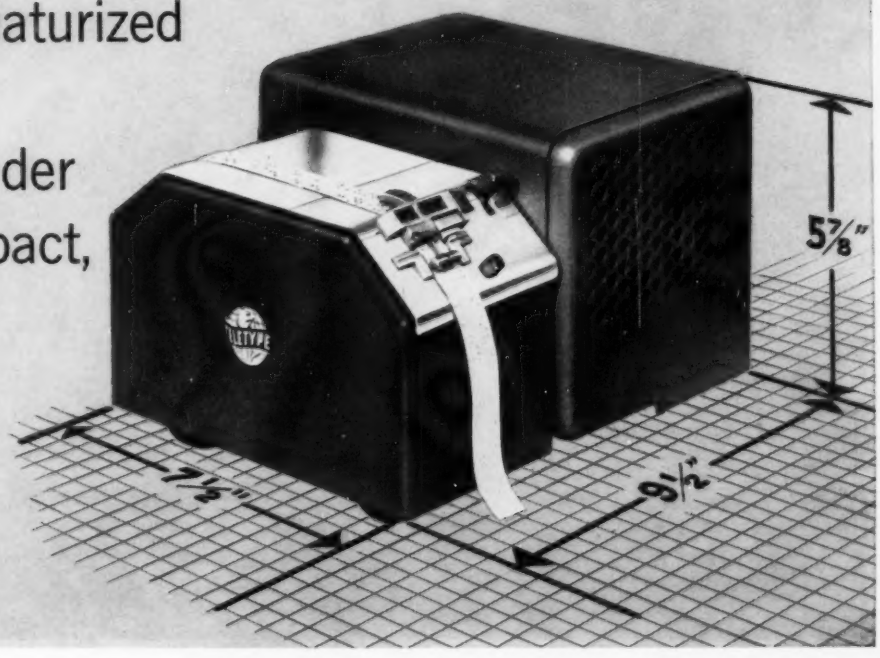
The commission originally denied the raise in May 1958. It also rejected the company's subsequent request for a rehearing.

The company then appealed to Sixth Judicial Circuit Court where Judge O. K. Whitney upheld the commission. The case was then carried by Northwestern Bell to the South Dakota Supreme Court. The supreme court agreed with a company contention that expenses involved in modification at its Aberdeen office should have been considered in determining rates. The tribunal remanded the case to the commission, directing that this factor should be taken into consideration in a new hearing.

(Continued on page 38)

40% reduction in size and weight...

New miniaturized Teletype Tape Reader has compact, space-saving design



Here is a new tape reader set from Teletype Corporation—the Model 28 miniaturized LXD. It features a 40% reduction in size and weight. This new space-saver set is completely compatible with other Teletype communications equipment. It features facilities for sequential (serial) transmission, with optional contacts available for multi-wire output, and it is designed to read either chadless or fully perforated tape.

The Model 28 miniaturized LXD tape reader is made, as is all Teletype equipment, for round-the-clock, day-in, day-out service with minimum maintenance. The unit is equipped with an all-metal clutch that requires lubrication only once or twice a year, and operates with precision accuracy for continuous or intermittent transmission.

New Brochure **A 4-page brochure on the new Teletype miniaturized LXD tape reader is available upon request. Write to Teletype Corporation, Dept. 63B, 4100 Fullerton Ave., Chicago 39, Ill.**

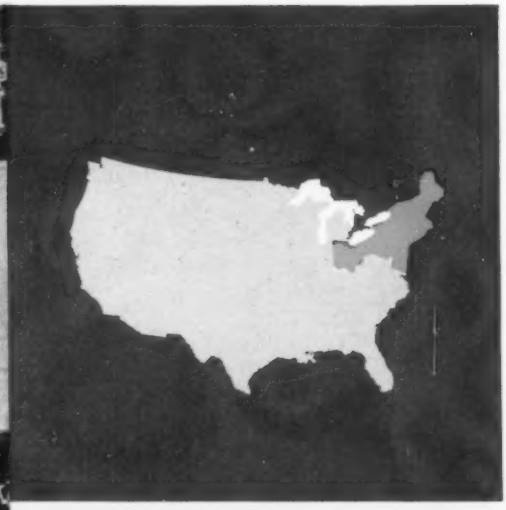
Specifications

Speed:	100 WPM (gears available for slower speeds)
Tape levels:	5 or 6
Dimensions:	5⅞" H, 7½" W, 9½" D.
Weight:	Approx. 15 lbs. net
Motor:	Synchronous, 115 V., 60 Cy.
Finishes:	Gray-green or custom

TELETYPE®
CORPORATION
SUBSIDIARY OF *Western Electric Company* INC.

in the east

TELEPHONE MEN CHOOSE STROWGER!



HOWARD SLUSHER
(president and general manager, Commonwealth Telephone Company of Ohio) is pleased with the operation of Strowger equipment at the Athens, Ohio, exchange. This is just one of the many dial exchanges in the East served by Strowger.
See full list at right.

EASTERN DIAL EXCHANGES SERVED BY STROWGER:

CONNECTICUT
Southbury

MAINE
Naples
Sebago
Standish

MARYLAND
Grantsville

N. H.
Andover
Boscowen
New London
Salisbury
Sutton
Wilton

N. J.
Belvidere
Blairstown
Bloomsbury
Columbia
Great Meadows
Hampton
Highland Lakes
Hope
Lake Mohawk
Oxford
Upper Greenwood Lake
Vernon

N. Y.
Atlanta
Bainbridge
Barlsville
Bemus Point
Berkshire
Bloomingburg
Brewerton
Candor
Caroga Lake
Central Square
Chautauqua
Chenango Bridge
Chenango Forks
Chester
Circleville
Cohocton
Denton
Deposit
Earlsville
Elizaville
Fishers Island
Florida
Franklin
Fredenia
Frewsburg
Fulton
Germantown
Gerry
Gloversville
Goshen
Guilford
Hancock
Highland Hills
Hopewell Junction
Howells
Jamestown
Johnstown
Kennedy
Lakewood
Leicester
Madison
Manlius
Mannsville
Maybrook
Middletown
Monroe
Morrisville
Newark Valley
New Berlin
North Brookfield
Northville
Norwich
Otisville
Oxford
Panama
Phoenix
Pine Island
Red Hook
Rhinebeck
Rotterdam Junction
Sherburne
Short Track
Shortsville
Sidney
Sinclairville
Slate Hill
Springwater
Staatsburg
Steamburg
Stedman
Thompson Ridge
Tivoli
Tyrone
Unadilla
Warwick
Washingtonville
Wayland
West Winfield
Wurtsboro

OHIO
Albany
Amesville
Amherst
Antwerp
Arcadia
Archbold
Ashland
Ashley
Ashtabula
Ashville
Athens
Attica
Austinburg
Avon
Avon Lake
Bellefontaine
Berlin Heights
Birmingham
Big Prairie
Blanchester
Bowling Green
Bremen
Brilliant
Brunswick
Bryan
Bucyrus
Burlington
Byesville
Caledonia
Cambridge
Carey
Catawba Island
Celina
Chardon
Chesapeake
Cheshire
Lewis Center
Chillicothe
Circleville
Clarksville
Clyde
Columbia Station
Conneaut
Curtice
Defiance
Delaware
Doylestown
East Claridon
Elmore
Elyria
Englewood
Geneva
Geneva-On-The-Lake
Germantown
Grafton
Grand Rapids
Granville
Gratiot
Greenwich
Hanover
Haskins-Tontogany
Hayesville
Hebron
Hicksville
Holloway
Jewett
Kelly Island
Kenton
Kilbourne
LaGrange
Laurelville
Lebanon
Leesburg
Lewisburg
Lewis Center
Liberty
Lima
Logan
Lorain
Londonville
Lucasville
Madison
Mansfield
Marblehead
Marysville
McArthur
McComb
McCutchenville
Mesopotamia
Middlefield
Milan
Montpelier
Mt. Vernon
Mowrystown
Napoleon
Nashville
Newark
New Athens
New Bavaria
New Bremen
New Concord
New Lebanon
New London
New Marshfield
New Philadelphia
New Vienna
New Washington
North Baltimore
North Eaton
North Ridgeville
Norwalk
Oak Harbor
Oak Hill
Oberlin
Old Fort
Ostrander
Ottawa
Oxford
Pandora
Parkman
Pataskala
Paulding
Perry
Perrysville
Phillipsburg
Plymouth
Port Clinton
Portsmouth
Proctorville
Put-in-Bay
Radnor
Ridgeway
Sabina
St. Marys
St. Louisville
Scio
Shelby
Shiloh
Sterling
Swanton
Sycamore
Tiltonville
Tipp City
Terre Haute
Trotwood
Troy
Urbana
Van Wert
Vermilion
Versailles
Wadsworth
Wakeman
Wapakoneta
Warren
Wayne
Wellston
West Alexandria
West Portsmouth
Weston
Westville
Willard
Williamsport
Wilmington
Wooster

PENNSYLVANIA
Adamstown
Allensville
Avonmore
Bally
Beaver Springs
Bedford Valley
Birdsboro
Boiling Springs
Boswell
Boyertown
Brockway
Brookville
Bruin
Butler
Carmichaels
Central City
Chicora
Clarks Summit
Cochranton
Columbia
Conneaut Lake
Conneautville
Conoquenessing
Covington
Curtisville
Dallas
Dalton
Darlington
Denver
Dillsburg
Dover
Driftwood
Dry Run
Eau Claire
East Berlin
Elizabethtown
Emlenton
Emporium
Ephrata
Erie
Evans City
Forburg
Fredonia
Gibsonia
Glen Rock
Greensboro
Hanover
Harrisville
Hartstown
Harveys Lake
Hershey
Hughesville
Hyndman
Johnsonburg
Jonestown
Kersey
Leatherwood
Leola
Lewisburg
Lititz
Manchester
Manheim
Marietta
Meadville
Meridian
Middleburg
Mifflinburg
Millerstown
Montgomery
Morgantown
Mountville
Mt. Joy
Mt. Pleasant Mills
Muncy
Myerstown
New Bedford
New Holland
New Oxford
New Wilmington
Nixon
North East
North Washington
Osterburg
Parker
Petrolia
Plain Grove
Portersville
Prospect
Red Lion
Reedsville
Ridgway
Rogersville
Sarver
Sassamansville
Saxonburg
Sayerstown
Scenery Hill
Selingsgrove
Seward
Sheakleyville
Shellsville
Slippery Rock
Spring Grove
St. Marys
Sandy Lake
Stoneboro
Terre Hill
Tioga
Topton
Tunkhannock
Turbotville
Volant
Watsontown
Wellsboro
West Sunbury
Wexford
Wilcox
Wrightsville
Yellow House
York

VERMONT
Alburg
Bridgewater
Bristol
Cabot
Charlotte
Groton
Isle LaMotte
Ludlow
Marshfield
Peacham
Perkinsville
Richmond
Springfield

EASTERN TELEPHONE MEN are pretty much like telephone men across the nation—they insist on the best in dial switching equipment. That's why so many Independent telephone men choose Strowger! The number of Independent stations served by Strowger far exceeds those served by all other makes of dial switching equipment *combined!*

NORTH, SOUTH, EAST or WEST, Strowger is best! You can prove this for yourself. Just visit a Strowger exchange and ask the owners if they're satisfied with their dial equipment. Then, get in touch with us. We'll be glad to help you plan for your next dial conversion. Just write Automatic Electric Sales Corporation, Northlake, Illinois, or call Fillmore 5-7111.

AUTOMATIC ELECTRIC GENERAL SYSTEM
Subsidiary of
GENERAL TELEPHONE & ELECTRONICS

The commission's current decision, reported on Feb. 8, held that changes directed by the court did not affect the rate of return enough to warrant increasing telephone charges.

"While the revision indicates a slight temporary reduction in the rate of return," the commission said, "it will have no effect on the annual levels of earnings for the future, and we still find 5.76 per cent well within the limits of a fair and reasonable return.

"The present rate structure is adequate to provide net earnings sufficient to pay South D...ota's intrastate portion of the company's interest requirements, the current dividends to its stockholders, and a reasonable amount for diversion to surplus."

R. A. Deveraux, vice president and South Dakota general manager of Northwestern Bell, said present rates "simply are not adequate. Undoubtedly they will be more inadequate in the future. Improvement in earnings somehow must be realized or ultimately our ability to serve the people of South Dakota will be affected."

Ask OK to Sell Stock to Employes In North Carolina

The Carolina Telephone & Telegraph Co. of Tarboro, asked the North Carolina Utilities Commission on Feb. 5 to approve a plan to sell 20,000 shares of its common stock to its employes at 83 per cent of market value.

The company in its petition said it felt share ownership by its workers would promote their interest "in the successful operation of the company and in the continuation of their employment."

Under the plan, employes would be entitled to purchase one share for each $300 of annual salary up to a maximum of 60 shares. They would pay for the stock in small monthly installments and receive interest at 3 per cent on the money until they had accumulated enough to buy the stock.

Power Company Sells System To Trans-Alaska Company

Announcement was made on Jan. 25 by John E. Field, president of the Trans-Alaska Telephone Co., Anchorage, that he had purchased the Nenana telephone system from the City Services Co., Nenana.

The City Services company, owned by Charles Myers, mayor of Nenana, has operated both the power and telephone systems in Nenana.

Trans-Alaska telephone exchanges serve subscribers at North Pole (near Fairbanks), at Anchorage, Portage, Kenai, Soldotna, Homer, and Seldovia.

W. J. Holladay, right, general manager of Alabama Telephone Co., is shown as he and Mrs. E. L. Bagwell receive awards as Fayette's "Man and Woman" of the Year from Mayor Guthrie Smith. Among his other activities, Holladay has been chairman of the agricultural committee of Fayette's Chamber of Commerce and, as such, has been active in a rural community development program.

Another new system is expected to be soon in operation as a link between Dillingham and King Salmon; and it is reported, Nenana telephone service will be extended to Clear within the "next 60 days."

File for Sale of Missouri Exchange; Ask to Borrow

The joint application of J. W. Holt, Jack K. Holt, Ross J. Holt, and Carl G. Holt to sell, and of the Milan Telephone Co., a corporation, to buy the exchange at Milan was filed with the Missouri Public Service Commission on Feb. 8, and set for hearing on Feb. 16.

At the same time, the Milan Telephone Co. asked for authority to borrow $165,000 to finance plant improvement, and to issue its promissory note and mortgage as security.

First ANC Cut-over?

In the article, "The New Look —All Number Calling (ANC)" by L. L. Ruggles (TELEPHONY, Jan. 30), mention was made of three Independents which had adopted or planned to adopt ANC. Of the three, Public Service Telephone Co., Montrose, Mich. was the forerunner, with a Jan. 17, 1960 conversion.

Now Hugh Straughn, secretary of the Oklahoma Telephone Association, has informed us that the Terral (Okla.) Telephone Co., owned and managed by Robert C. Lewis, cut over to ANC and to dial on Nov. 20, 1957.

Mr. Straughn observed that the Terral cut-over to ANC even preceded Southwestern Bell Telephone Co.'s conversion of its Wichita Falls, Tex. exchange to ANC.

Mr. Straughn believes the Terral exchange was the first in the United States cut over to ANC.

New Jersey Eying Federal Excise Tax

In another development in the federal excise tax battle, Governor Meyner of New Jersey recently said he will ask the state legislature to join in an effort to terminate federal taxation of telephone service so that the way would be opened for state governments —in particular, New Jersey—to make use of the 10 per cent tax levy.

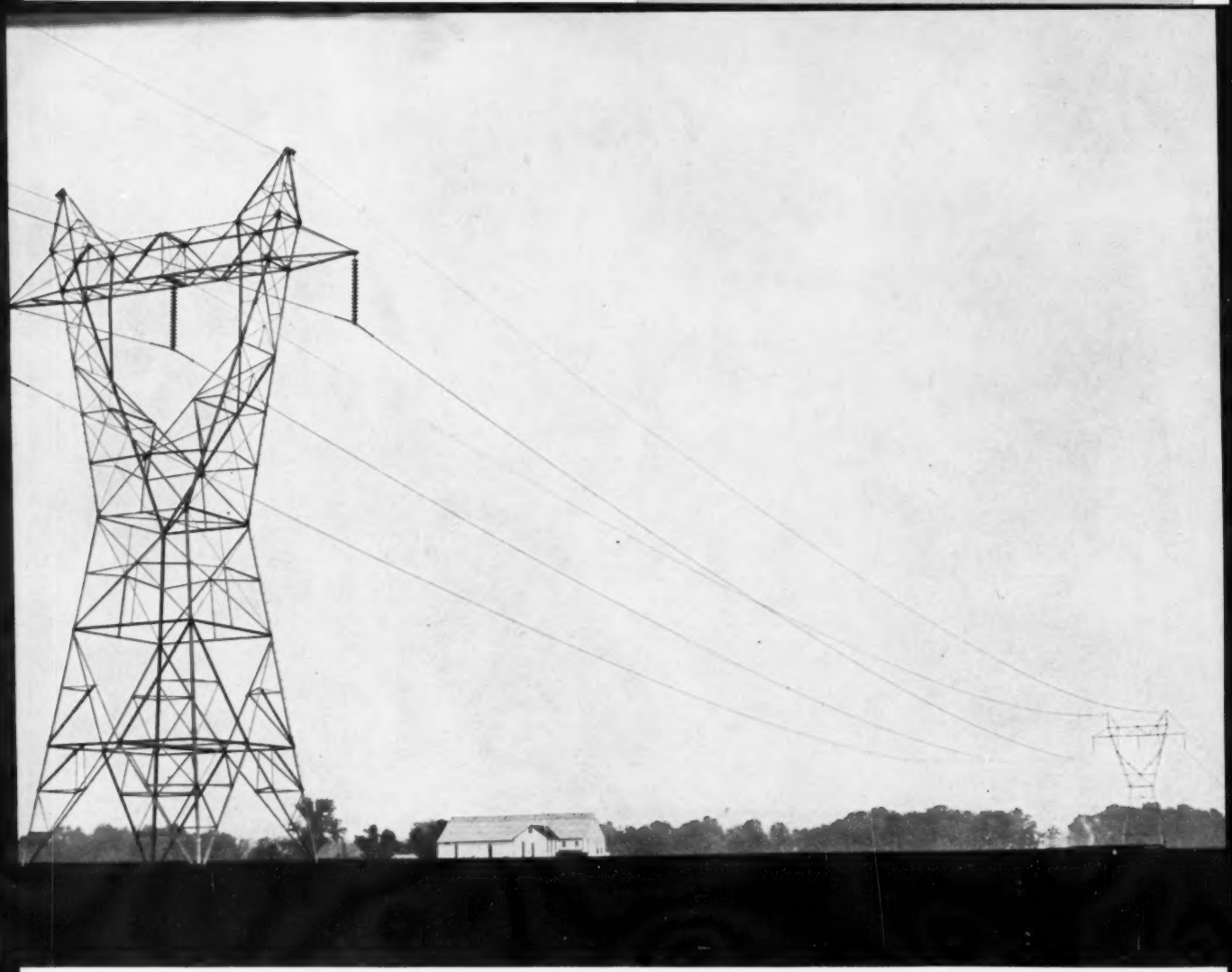
Governor Meyner said, "If this tax is released by the federal government to the states, New Jersey can expect to derive about 18 million dollars annually."

New Jersey is the fourth state to seek solution of its tax problems by assumption of the telephone tax (TELEPHONY, Feb. 13; "In the Nation's Capital," Jan. 30).

Authorize Stock Issue To Affiliates in Oregon

Knappa Telephone Co. on Feb. 10 was authorized by the Oregon Public Utility Commissioner to issue 1,500 shares of its $20 par value common stock ($30,000 total) to affiliated interests.

These affiliated interests are Telephone Utilities, Inc.; Island Empire Telephone & Telegraph Co., Gig Harbor, Wash.; and Ilwaco (Wash.) Telephone & Telegraph Co.



Ground wires of Bethanized Strand protect 220-kv tap line

This 26-mile tap line, originating at the South Akron (Pa.) substation of Pennsylvania Power & Light Company, will eventually connect with the Brunner Island Steam Electric Station. The 220-kv line has 137 towers, with spans ranging from 581 ft to 1540 ft. Its three power conductors are protected by two overhead ground wires of ½-in. extra-high-strength bethanized "C" coated strand. Siemens-Martin "C," in ⅜-in. diameter, is used for the counterpoise.

Utilities can obtain virtually any degree of protection against corrosion with bethanized strand. In addition to the "C" coating, bethanized strand comes in three other coating weights—A, B, and D. Each coating is 99.9 per cent pure zinc, applied to the strand wires by a special electrolytic process. The coatings are ductile, and uniform in thickness.

The "D" coating, furnished in common, Siemens-Martin, and high-strength grades, contains four times the weight of the "A" coating. Yet the "A" coating is adequate for any installation where atmospheric conditions are good. The "B" coating is twice the weight of "A"; the "C" coating is three times the weight of "A."

If you would like full information on bethanized strand, drop a line to the nearest Bethlehem sales office.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

"SHOP-BY-PHONE" TO BEGIN

ADVERTISING NATIONALLY IN MARCH

March issues of three widely-read, widely-circulated national magazines —*McCall's, Parents'* and *Redbook*— will carry a full-page advertisement urging housewives to shop by phone when they can't leave home.

In months to come the ad will also appear in *Good Housekeeping* and *Ladies' Home Journal*—reaching, all told, over 20,000,000 households.

During the past year, Bell System advertising in department store trade magazines has been getting a lot of stores interested in the profit possibilities of selling by telephone.

Now it's time to get housewives everywhere interested in the ease and convenience of *buying* by telephone when weather or children keep them from shopping in person.

We expect this advertising to stimulate not only local calling for telephone companies across the country, but also additional business for the many stores they serve.

For the more useful and profitable we can make telephone service, the better off our own business will be.

BELL TELEPHONE SYSTEM

Shown below are some of the advertisements which have been running for the past year in department store trade magazines.

Helpful Literature

SPACE-MAKER® SALES KIT — All the materials needed to promote the Space-Maker Telephone are included in a new sales kit available from Automatic Electric Sales Corp.

The jacket-folder contains three colorful posters, newspaper ad mats, press release, envelope stuffer (which can be ordered in quantity), and radio commercials, plus several display ideas.

These sales aids are reported to provide a complete promotion program for the Space-Maker, a versatile new instrument which features a tilting and rotating dial, and swinging hookswitch to give the subscriber a choice of mounting positions. Request HL550.

•

GENERAL TELEPHONE TECHNICAL JOURNAL—The January issue of *General Telephone Technical Journal* introduces readers to a new system of "Coin Box Customer Dialing" which extends dial operation on certain calls formerly handled on a manual basis.

An article on "PABX Call Restriction in Modern Telephone Networks" describes three classes of restriction to PABX extensions on outgoing calls.

Another report outlines new multifrequency pulsing equipment capable of generating, distributing, and monitoring the audio tones required for inter-office MF signaling.

The *Journal's* series on electronic switching continues with "Memory Devices Applicable to Future Electronic Switching Systems."

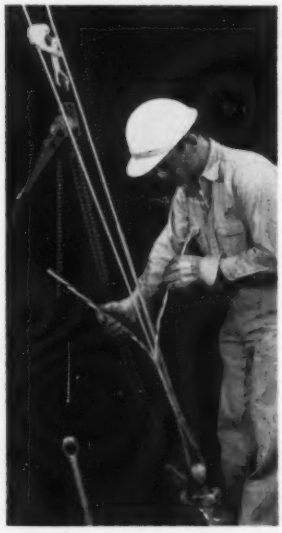
Other articles include "The 'Space-Maker'® Telephone," "Automatic Recorder-Announcer for Coin Demonstration and Intercept Service," and "A New Dynamic Impedance-Matching Circuit as Applied to a Conference Repeater." Request HL551.

•

"THE GOOD GUY"—R. F. Sullivan, field demonstrator, Preformed Line Products Co., is shown here applying the second Guy-Grip dead-end in a demonstration of the "controlled slip" technique which is used to equalize the tension of multiple guys.

This illustration is one of 48 photographs used in the new 32-page booklet, "The Good Guy," published by Preformed to illustrate step-by-step application procedures of Guy-Grip dead-ends at the top, breaker and anchor locations of down guys.

The booklet illustrates procedures to be used in single guying, multiple guying to a single anchor rod, and multiple guying.



In addition to providing application instructions, "The Good Guy" compares the new exclusive Preformed Cabled Loop with Open-Helix Loop Guy-Grip dead-ends, and presents specification and performance data.

A 24-page pocket size lineman's field booklet is also available. Request HL 552.

•

GUY GRIP DEAD-ENDS FOR DOWN GUYING—A 24-page booklet, also published by Preformed tells how to apply both open helix and cabled loop Guy-Grip dead-ends, at the top, breaker and anchor locations on single or multiple down guys.

Intended, according to Preformed, to acquaint users with simplicity and ease of application of Guy-Grip dead-ends, step-by-step procedures are illustrated throughout the booklet. Size and material specifications, as well as basic performance data, also are included.

This is a pocket-size companion piece to the above booklet, "The Good Guy." Request HL553.

•

TURRET DERRICK—A truck-mounted derrick, which is actually three tools in one—a derrick, an aerial lift and a digger suitable for telephone line and other industrial work—is now available from the Truck Equipment Co.

Advantages pointed out in a new booklet issued by the company are: the economy of three pieces of equipment in one; built-in safety features in the Truco Turret Derrick; and storage space economy.

Feather-touch action in the directional controls safeguards workers in

TELEPHONY PUBLISHING CORP.
608 S. Dearborn St.
Chicago 5, Ill.

Please have the manufacturer send me without obligation the literature indicated by the following numbers:

HL550_____; HL551_____; HL552_____; HL553_____;
HL554_____; HL555_____; HL556_____; HL557_____;
HL558_____.

Name.....

Company.....

Street.....

Town and State.....

2/20/60

the basket and, according to the company, prevents them from making wrong moves. Check valves are used in the derrick to prevent slip when the unit is operating, and to slow the descent of both basket and boom in case of damage to the hydraulic system.

Hydraulic outriggers, or powerful steel arms, extend outward and down from the truck for a distance of 4 feet on each side, and give a 16-foot span for stability.

The Truco booklet points out, besides the safety-engineered construction, the economy of space required for the derrick base, which occupies only 16 inches of space behind the truck cab.

Compactness is also another feature, permitting operation of the unit without special licenses or permits, according to the company; and enabling the three-in-one unit to be stored easily. The derrick telescopes in stages, lowering the over-all height with the unit in rest position, and shortening the over-all length. It is available in 40 HP and 80 HP sizes.

The 8½-x-11-inch booklet is generously illustrated, and all details of turret, winch line, two-man basket and hydraulic action, as well as capacity charts and specifications, are given. Request HL554.

•

GASOLINE-DRIVEN ELECTRIC PLANTS—A special folder, listing their entire line of gasoline engine-driven electric generating plants, has just been announced by D. W. Onan & Sons Inc.

Onan states that these compact, completely self-contained generator sets provide an independent source of electricity for primary power, where highline power is inconvenient or unavailable; for standby power as protection against interruptions in commercial power, and for portable or mobile power for the operation of electric tools, appliances or lighting.

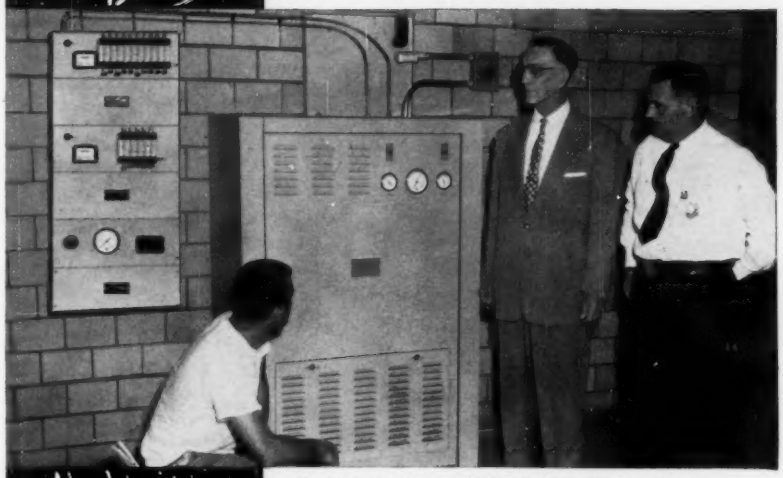
The two-color, four-page folder lists each series of plants (both air and water-cooled) in detail, with specifications for both engine, generator and controls outlined, to make it comparatively simple for the reader to select the proper type of generating plant for his particular needs.

A chart of representative models lists capacity of the plant, voltage, model number, type of engine, starting method, dimensions and weight. Air-cooled models are listed in sizes ranging from 500 to 10,000 watts; water-cooled units, from 10,000 to 170,000 watts. Request HL 555.

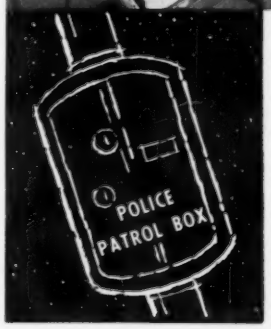
•

ARTIFICIAL LINE HANDBOOK—A new handbook (Number 1.021A) from Airtronics International Corp. shows

MODERN CITIES PROTECT FIRE & POLICE DEPT. COMMUNICATIONS WITH PUREGAS DRY AIR



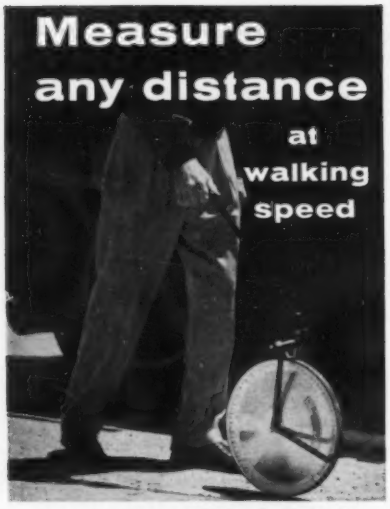
The illustration shows a PUREGAS Model No. 5000 installed at the City Hall, Columbus, Ohio. L to R: Mr. James Menear, Fire and Police line foreman; Mr. James Harkins, Fire and Police communications chief; Capt. Lester Whitman, Columbus Fire Dept.



PUREGAS cable pressurization proves an added safety measure in the communications systems of many municipal emergency services for their Fire and Police departments. Protecting the telephone cables from moisture with PUREGAS equipment increases daily efficiency of all communication systems and greatly reduces the chance of line failure due to storms, lightning or floods, while keeping maintenance expenditures at a minimum. The PUREGAS system of dry air pressurization can be initiated with a small budget and will be self liquidating with savings brought about by reduced operating costs.

The PUREGAS line includes Models No. 750, No. 1500 and No. 5000. Ask for specific information to meet your requirements and Bulletin 110 on Pressurization.

PUREGAS EQUIPMENT CORP.
578 OAK STREET • COPIAGUE, L. I., N. Y.



records 100,000 ft.
automatically!

It's So Easy to measure with a Rolatape ...and you save time on every estimating job...no tapes to wind, no helper is required. You get precision-accurate measurements every time.

Records Feet automatically and the accumulated total is always in full view.

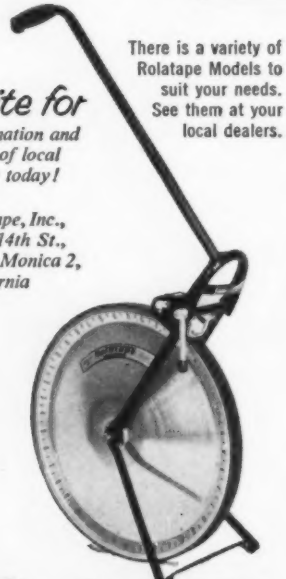
Shows Inches, and Fractions of an inch. Wheel is calibrated in inches and fractions for quick easy reading.

Shows Tenths of a foot. Wheel is calibrated in tenths on reverse side for engineers.

There is a variety of Rolatape Models to suit your needs. See them at your local dealers.

Write for information and name of local dealer today!

Rolatape, Inc., 1741 14th St., Santa Monica 2, California



Rolatape
Measuring Wheels

how the company's recently developed "Artificial Line" provides what is said to be a practical, economical solution to the many problems (bulk, length, cost, etc.) which have hitherto prohibited the use of existing "in plant" cables for telephone transmission, plant maintenance and similar training programs.

The handbook explains how the "lumped element" Artificial Line shows all of the important characteristics of physical cable circuits up to the limiting frequency (determined by the line's electrical length).

Detailed instructions tell how to simulate nearly any normal or abnormal electrical condition occurring on regular, in-service distributed-constant transmission lines.

The handbook also covers: simulating a loaded or non-loaded cable pair of any length, from 600 to 39,600 feet; varying, via instant push buttons, total length or load section lengths; introducing common irregularities such as bridged taps, mixed loading or coils omitted. Request HL556.

■

MICROFILM EVALUATION—A positive evaluation of microfilm, written by a leading microfilm user, is available free in booklet form from the Minnesota Mining & Mfg. Co.

Entitled, "Let's Take a Positive Look at Microfilm," the article appeared recently in a national business publication and is authored by Edward Rosse, head of the Social Security Administration's microfilm program—one of the world's largest users.

Mr. Rosse describes the enormous potentials for microfilm in today's business world, many of them at surprisingly low cost and with a minimum purchase of equipment.

He explains the basic uses of microfilm and draws upon experiences in setting up his own department's program to illustrate the advantages of microfilm in daily business activity. Request HL557.

■

ELECTRONIC PARTS CATALOG — Described as "a revolutionary innovation in electronics parts catalogs," the new Radio Shack 1960 Guide to Electronic Buying is now available.

The innovations include an increase to an 8½-x-11 page which is said to permit easier reading of detailed, or tabular, information; rotogravure printing; the inclusion of technical articles, engineering specifications, electronic symbols, schematic diagrams and useful formulas. It also is reported to include a complete index of products and manufacturers. Over 40,000 items are listed in the 312-page issue devoted to industrial electronic parts and equipment.

The 1960 buying guide is supplied by Radio Shack's newly reorganized industrial and government division. This division provides technical and special services and is backed by Radio Shack's range of parts, instruments and equipment. The new division is headed by Paul Wickman, formerly manager of dealer products, electronic components division of General Electric Co., Owensboro, Ky. Request HL558.

IN PUBLICITY, IT'S INTEREST THAT COUNTS

Continued from page 22

cardboard and signed by hundreds of persons.

Of course, ballyhoo has its limitations. To be effective, it must bear some relation to the aims and policies of the company. There must be a reason for it. Nothing is achieved by a stunt that is pointless and it should have at least a veneer of plausibility. It must not be too far fetched or even too obvious.

Say Something

A business need not always do something to attract attention. It can say something. Pronouncement, as far as publicity is concerned, is often as important as action. As always, the primary requisite is to be interesting.

A favorite device is the catch phrase because it makes an impression. It is frequently repeated; hence it is easily remembered. We still remember the Rooseveltian barbs, "Princes of Privilege" and "Economic Royalists." Today, "Big Labor" is as unsavory as "Big Business" was in the 1930's.

Another device is the slogan, because its power is incalculable. It starts wars, wins elections, sells soap and cereals. It sells a business too. A slogan is powerful because, like the Bible, it is easily quoted. And it sticks in the mind. Hardly anyone would fail to recognize "Blessed are the merciful." Many would also recognize "All the news that's fit to print." A "Square Deal" swept one Roosevelt into office. A generation later it became a "New Deal" and swept another Roosevelt into office. Still later, it became a "Fair Deal" and kept Truman in office. Each wrote a program in two words and each influenced action by the use of a slogan.

Silence for a business, even a staid utility, is not golden. Your company, through its officers, can become articulate. What is said by them should be

timely or significant and should be said in an interesting manner. It can be said in a speech, a report, a pamphlet, a statement, or an article. It can be said in a radio or television program.

The Rule of Repetition

To the rule of interest we must add another—*the rule of repetition.* There are two basic reasons for this rule: (1) the individual's capacity to remember is limited. (2) the competition for his attention is keen. He is besieged on all sides—through the newspapers or billboards, over the radio, and in countless other ways. Consequently, he sets up a certain defense mechanism and permits only a few impressions to get through to him. It is not enough, therefore, to state your case or deliver your message once. It must be repeated. You must restate the case or redeliver the message at every opportunity. Gaston LaBon, one of the greatest mass mind psychologists, said:

"Affirmation, pure and simple, kept free from all reasoning and proof, is one of the surest ways of making an idea enter the minds of crowds. The conciser the affirmation is, the more destitute the every appearance of proof, the more weight it carries . . . Affirmation, however, has no significance unless it is constantly repeated, and so far as possible, in the same terms."

In an evil sort of way, Hitler and Goebbels understood this and by practicing it, virtually hypnotized the German people. Radio and television people understand this, too. Otherwise, how could so many commercials have penetrated our mental barriers? Who can fail to recognize "L.S.M.F.T." or "They Satisfy" or the toothpaste that serves those "who can't brush after every meal?" As LaBon said, it is affirmation, pure and *simple.*

With grateful acknowledgment to Anthony R. Saeli, managing director, Alexandria (Va.) Chamber of Commerce, for his contribution of source material.

Virginia Company Announces Three Personnel Changes

Miss Augusta K. McClelland, secretary and treasurer of the Home Telephone Co., Smithfield, Va., for over 30 years, and an employe since Sept. 4, 1917, retired on Dec. 1, 1959 due to ill health.

The company announced that, effective Feb. 1, Miss Margaret W. Little, assistant secretary and treasurer, was appointed treasurer. J. Kempter West, an assistant secretary and treasurer, has been appointed secretary and commercial manager of the company.

Miss Little has been with the company 18 years and Mr. West seven years.

Time-saving, trouble-saving tips on

Anchoring Lines, Equipment to Plaster or Masonry . . .

. . . in this pocket-size handbook by RAWLPLUG, the telephone industry's authority on masonry anchoring. Tells how to fasten cable straps, conduit hangers and instruments *securely* to solid or hollow walls with economical, quickly installed masonry anchors and hand or power drills.

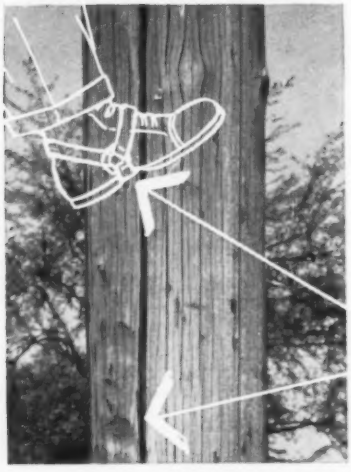
- How to anchor telephone installations without hole-spotting
- Fastening methods that don't crack plaster or concrete
- Selecting screw, anchor, and drill sizes
- Converting your present drill to a power hammer
- And many other facts to save time and money anchoring telephone equipment to plaster or masonry.

For your **FREE COPY** of this "Masonry Anchoring Handbook," ask your Rawlplug branch or

The RAWLPLUG Company, Inc.

230 Petersville Road, New Rochelle, N. Y.

CHECKS
and
SPUR CUTS
are
Prime Decay Spots



and POLE SPRAYERS give them EXTRA ATTENTION

Older poles just naturally suffer from checks and spur cuts... trouble areas where moisture collects. This makes them vulnerable to the fungus decay condition known as "Shell Rot" which lessens pole life and impairs safety of linemen.

POLE SPRAYERS, INC.— Men, methods and materials — is a pioneer in the art of above-ground inspection and treatment for standing poles. Using proven preservatives, special attention and extra saturation is given to all critical areas. Fungus decay is stopped cold... reinfestation is prevented. Poles take on new life, last longer, costly replacements are delayed for years to come. Increased safety of your climbing personnel is assured.

You will be surprised to learn how little it costs to adopt an above-ground *Pole Spray* program. Get the facts. Write POLE SPRAYERS, INC., 976 Ellicott Street, Buffalo 9, N. Y.

Pole Sprayers Inc.

SERVING UTILITIES SINCE 1935

N. Y. Governor Proposes Utilities Pay PSC Costs

In a budget message to the New York legislature, Governor Nelson Rockefeller proposed that annual operating funds for the New York Public Service Commission be provided by the utility and transportation companies it regulates.

The proposal was viewed as likely to cause some consumers to fear that if the companies assume the burden of paying the commission's bills, they eventually will pass this extra expense on to the consumers in higher rates.

For the current fiscal year, the appropriation to run the agency is $3,789,240. Gov. Rockefeller said the agency will require $4,159,000 in the fiscal year beginning Apr. 1.

Under his proposal, this would be paid by the companies regulated by the commission. The governor did not detail how the cost of operating the commission would be shared by these companies.

However, state budget officials said they expected that an assessment formula would be set up in bills to be introduced in the legislature.

Rockefeller recommended that the agency's appropriation be placed on a "first instance" basis, with the state advancing necessary operating funds to the commission, but reimbursed at the end of the fiscal year by assessments levied on utilities.

Such a changeover, the governor pointed out, would put the commission on the same financing basis as the Department of Banks, the Department of Insurance, and the Workmen's Compensation Board. The costs of operating all these agencies are met by the businesses they regulate or supervise.

Gov. Rockefeller also noted that about 25 other states "now charge back to the utility companies the whole or a large part of the total cost of operating their public service departments."

He said this expense is "clearly an appropriate charge upon the companies rather than a charge upon all state taxpayers."

Change O. Convention Dates

The Ohio Independent Telephone Association has announced that the dates for its 1960 convention have been changed from Mar. 28, 29 and 30, to Mar. 29 and 30. The convention will be held at the Deshler Hilton Hotel, Columbus.

Named to Ill. Commission

Albert H. Reichman of Champaign has been reappointed by Gov. William G. Stratton as a minority member of the Illinois Commerce Commission. He was appointed initially last March to fill out the unexpired term of William Vicars, deceased. Mr. Reichman's term will be up in January 1965.

Nebraska Association Urges Excise Tax Termination

The Nebraska Telephone Association at a board of directors meeting adopted a resolution urging congress to permit the federal excise tax on local telephone service to terminate on June 30 and seeking the repeal of the excise tax on long distance service.

The association pointed out in its resolution that the addition of the excise tax distorts the findings of commissions on telephone rate structures.

Among other points, the resolution stated:

(1) That the levying of the tax places the industry at a disadvantage with companies, not subject to such tax, which offer appliances and goods for sale.

(2) That the tax, through its restrictive effect on communication usage, adversely affects the earnings potential of telephone companies and places them at a competitive disadvantage in attracting investment funds.

B. C. Company Plans to Issue Preferred Stock

The British Columbia Telephone Co., Vancouver, plans to create a new issue of 12 million dollars in preferred stock and will ask stockholders at a special meeting on Mar. 10 to consider the proposal.

Stockholders will also be asked to approve an application for an amendment to incorporate, which would provide authority for the company to purchase shares of any companies engaged in business similar to that of B. C. Telephone.

Obituaries

CHARLES W. PICKELSIMER, 78, president of the Citizens Telephone Co., Brevard, N. C., died on Feb. 4.

Mr. Pickelsimer had owned controlling interest in the Citizens company since 1936. He was also general manager of the Cascade Power Co. at Brevard.

He and his brother, the late J. K. Pickelsimer, chartered the Brevard Power & Light Co., and the Mason-Dixon Trucking Lines, and the Transylvania Trust Co. (now the First Union Bank of Brevard).

Survivors are two sons, Charles Jr., and Joseph of Brevard; two daughters, Mrs. Ethyl Doyle, Charlotte, N. C., and

Mrs. Ann Dunn of Dalton, Ga.; and a sister, Mrs. Leila English of Brevard.

•

GEORGE G. MEHURON, 72, formerly wire chief of the Lincoln Telephone & Telegraph Co. at York, Neb., died on Feb. 2.

Starting with the Surprise Telephone Co. in 1915, Mr. Mehuron lated joined LT&T as a groundman in the eastern district, and then was a combinationman at Wahoo.

He was also a lineman and installer in the eastern district and a combinationman at David City before entering military service in 1918.

He returned in 1919 as a sub-foreman in the eastern district and was an inspector and combinationman in the general construction department, before moving to York in 1926 as a combinationman. Mr. Mehuron became a testman and switchboardman in 1928, and was then named wire chief at York in 1934.

In 1952, he was injured while working on a rural pole and was unable to continue working. He retired on Dec. 31, 1952, and made his home in Beaver Crossing.

Mr. Mehuron was a charter member of the Frank H. Woods Chapter of the Independent Telephone Pioneer Association.

•

HAROLD ARTHUR BISHOP SR., 72, president of the Starke (Fla.) Telephone Co. died on Feb. 5.

A native of Great Bend, Kan., Mr. Bishop went to Starke in 1919.

Before that time, starting in 1903, he had worked for the Bell System as a cable splicer and as manager of several Florida exchanges.

In 1919, when he bought the Starke exchange, it provided magneto service to 97 stations. At the present time, it has three automatic exchanges serving 1,700 stations.

He retired from active duty with the company in May.

Survivors include his wife, Lillian Turner Bishop; son, Harold A. Bishop Jr., vice president of the Starke company; daughters, Mrs. William C. Powell and Mrs. Nina R. Andrews, and five grandchildren, all of Starke; as well as a sister, Mrs. Mary Naff of Theyer, Kan.

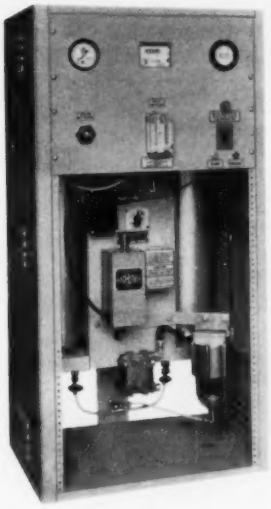
Beware Government Vacuum

". . . when the states abdicate or neglect their functions, it is an invitation for the federal government to step in to fill the vacuum. We have seen that happen in many areas of government . . ."—ROBERT B. MEYNER, *governor of New Jersey.*

well worth investigating

S&G

MODEL A
Air Compressor Dehydrator



Exchange equipment designed to supply chemically dry air for telephone cables, aerial and underground, this unit can supply as many as 30 cables. The unit is equipped with volume recording air meter, high and low pressure alarm switches, humidstat and hour meter.

- **Completely automatic in operation**
- **Air Purifier to eliminate oil mist**
- **Incorporates the latest safety devices**

S & G MANUFACTURING CORPORATION
P. O. Box 1309 • New Orleans 10, La. • JAckson 5-3142

PWC

TELEPHONE CABLES
For Every Application

BURIED
TYPE 167

Specifically designed for direct earth burial by trenching equipment and ordinary methods as well as aerial and duct service.

Conforms to REA Specification PE-23.

Available in No. 19, 22, 24 and 26 AWG from 6 to 400 pairs.

Fully color coded with all pairs guaranteed.

Inner polyethylene jacket for mechanical and electrical protection.

Longitudinal copper shield corrugated on large diameter cables for flexibility.

5 mil copper tape on standard cable.

10 mil copper tape on gopher protected cables.

Black polyethylene outer sheath.

THE PLASTIC WIRE & CABLE CORPORATION
JEWETT CITY, CONN.

Make "Your Own Phone Test"

to prove COMCO Cords the best buy for your entire system!

Nothing convinces like "in-service" performance, and that's where COMCO Cords excel! Making this test yourself is as simple as ordering COMCO Cords installed on your instruments, switchboards and intercommunications equipment. Their rugged reliability and noise-free conductivity will soundly attest to COMCO'S top quality cord designs and construction!

COMCO'S Complete Line meets every cord requirement . . .

From remarkable Spiraflex Retractile Cords, in standard or extended length (10, 15 or 25 ft.), with handset-matching, black or decorator colored P.V.C. jackets, to test and patch cords, COMCO meets every cord requirement. Almost without exception, you'll find the design and construction you want, the terminals and strain reliefs you need, among cords that COMCO stocks for immediate delivery. Special cords to your specifications are swiftly available, too. Start your test of COMCO service and cord performance by ordering for your own equipment, today!

Write today for Catalog, Samples and Prices

COMCO

COMMERCIAL CORD COMPANY, INC.

CLIFTON SPRINGS, N. Y. • HOward 2-2311

Distributed by: LEICH SALES CORP. 427 W. Randolph St., Chicago 6, Illinois

AUTOMATIC ELECTRIC SALES CORP. Northlake, Ill.

THE FARMER and THE TELEPHONE

Continued from page 28

situation is changed. There is a trend towards a number of small offices rather than one large office and we now have a large number of 100-line community dial boards, some with only 50 lines installed.

Our idea is to have still smaller offices in rural areas. Let us call them: "Neighborhood dial boards." They would somewhat resemble the "concentrators" which are sometimes used in rural areas. On a call from the central office, the concentrator completes the last one or two digits of the called number. On a call towards the central office the subscriber lifts his handset and is automatically connected to an idle central office trunk. One trouble with the concentrators that we have seen is that a call from a subscriber to another line which is connected to the same concentrator, or even a reverting call to someone on his own line, goes through the central office and ties up two trunks.

The "neighborhood board" would also resemble a small PABX such as those with eight or 16-line capacity. Subscribers connected to the neighborhood boards would be able to dial each other (probably with one or two digits) without going through the central office. They would be furnished with a directory printed on a card for this purpose. By dialing certain numbers they could put the emergency signal on their own line, or on any other line connected to the same board. There could also be a special number which would ring every telephone connected to the neighborhood board and connect all the lines together, thus alerting the entire neighborhood to some serious emergency.

To place a call through the central office the subscriber would dial "O" or perhaps press a button. The capacity of such a board would be somewhere between eight and 16 lines. Simple 10-point and 20-point rotary switches are available, or perhaps just one crossbar switch would serve every purpose. When a call came from the central office for a line which was busy locally, a special tone would warn the subscribers on both lines involved in the local connection that a central office call was waiting for one of the lines.

If these rural stations were reasonably close together, four-party lines could be used. This would simplify the selective ringing and give better service. This "neighborhood plan" would give a community of farmers an exchange of their own, especially designed to meet their needs, which they could use almost as they pleased and yet not interfere with the general service. Ultimately, such a board would be "all electronic" with tone ringing and the only power it would require would be one low voltage battery.

If even one of the ideas presented in this discussion is developed and results in better service for the farmer, we will feel that our efforts have been justified.

IN THE NATION'S CAPITAL

Continued from page 20

its business through cheaper rates. He admitted that the federal government could provide cheaper power service because it does not pay taxes, or have to "buy money for capital improvements in the same market as the private utility. We felt that this was a real threat to our business and we should take every means possible to protect the future of the company."

As a result, the electric company "embarked on an advertising program to attempt to convince our customers that they should remain with us." In its advertising, the company made no attempt to influence people outside of its service area. Therefore, Welsh maintained that the expense was an ordinary expense of a kind which is fit and proper for a normal business enterprise to incur.

There was also some testimony from an advertising director representing the local press. He gave as his opinion that the advertising in question would ordinarily be classified as "trade advertising" by newspapers. This witness, Hayden Van Hoose, of the Newspaper Production Co., said that paid publicity to combat trade competition was one of the primary objects of all business advertising, and that it was only incidental that the competitor in this case was the government. An unfair competitor, of course, would call for even more strenuous protective advertisement.

Commissioner White ruled that the government could call witnesses at a future date, by way of opposition. Then the next step is for Commissioner White to present his findings of fact to the U. S. Court of Claims. That court will decide whether the tax payment should

be refunded, or if the situation calls for classifying legislation by Congress. If the court so decides, it will be difficult for the Congress to dodge its clear responsibility—probably not this year, but perhaps in 1961.

The principle involved here would, of course, apply equally to telephone or gas utilities' advertising to repeal the federal excise tax, for example, or other changes in federal or state legislation which are found injurious to proper business interests.

Kappel Points to Inflationary Erosion

Ending up an otherwise glowing report to the American Telephone & Telegraph Co. stockholders for the year 1959, the company's president, Frederick R. Kappel, warned about the depressing effect of high taxes and inflationary erosion on future Bell System earnings.

Taxes on Bell System service last year averaged $3.39 per telephone per month. Federal, state, and local taxes equaled $7.66 per share or considerably more than earnings per share of $5.22. Other rising costs noted were high interest rates (ranging from 4⅜ to 5¾ per cent on bonds) and wages—the largest single cost factor in the business.

On the inflationary impact, Mr. Kappel observed that non-regulated companies are able to increase earnings in keeping with greater investment geared to today's dollars. But this is not so of telephone companies. Mr. Kappel said on this:

"The telephone companies' physical plant and facilities, too, are worth more in current dollars than they cost in dollars of the past.

"Yet many commissions today give small recognition to this in fixing telephone rates, and generally limit earnings to a stated return on the original cost of the properties, less depreciation.

"We are, therefore, urging the commissions, in their consideration of telephone earnings, to give much more weight to the shrinking value of the dollar."

CWA Meeting Optimistic

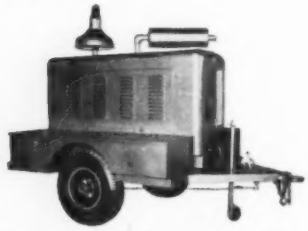
A recent three-day conference by the collective bargaining policy committee of the Communications Workers of America (AFL-CIO), held in early February at New York City, produced just as about as cheerful a report of business progress in the telephone industry as President Kappel's recent report to the Bell System stockholders. Joseph A. Beirne, president of the union, recalled that since 1957 there have been no major strikes involving the CWA and any telephone or other communications company over contract negotiations. Most contracts have been

For the BEST in pole values specify
P&H
FULL LENGTH TREATED
P&H
PENTA
NORTHERN WHITE CEDAR POLES
Durable
Strong
Dependable
Clean
When you specify reliable P & H Penta Poles you *know* your investment is sound, your aerial plant is safe for many years of dependable, trouble-free service. Overhead construction with P & H Penta Poles has been field tested and proved through more than 50 years of participation in telephony progress.
PAGE & HILL, INC.
1017 PLYMOUTH BUILDING • MINNEAPOLIS 3, MINN.

There's VERSATILITY in TELEPHONE SYSTEM SERVICE and Portability with...

U.S.

Complete "versatility" is possible for telephone system service with portable U.S. Versa-Trailer standby emergency power units in sizes from 10 kw to 35 kw capacity.

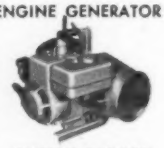


Units provide both single phase power for lights and 3-phase power for other needs. Many exchanges in an area can be served by a single unit.

Telephone systems use U.S. portable generating sets for on-the-spot power needs. Sizes 750 watts and larger, air-cooled.

ENGINE GENERATOR

Portable engine blowers provide convenient means of furnishing fresh air to manholes, or for ejecting smoke, fumes, etc.



ENGINE BLOWER

Motor driven blowers like engine driven counterparts, are invaluable for exhausting contaminated air.

MOTOR DRIVEN BLOWER

for complete information write . . .

UNITED STATES MOTORS CORPORATION — LIGHT U.S. POWER — OSHKOSH · WISCONSIN

UNITED STATES MOTORS CORPORATION

110 W. 5th Ave. / Oshkosh, Wis.

arrived at peacefully prior to termination of the old contract.

A formal resolution setting forth the goals of the CWA stated:

"From all indications, and most recently from the President's economic report to Congress, as well as his Budget Message, 1960 promises to be a year of economic growth and relative prosperity throughout the United States.

"Capital expansion, industrial profits, and dividends and improved technology are expected to reach record heights. The same favorable factors are equally evident in Canada.

"The Communications Workers of America firmly believe that, in order to maintain a proper economic balance, American and Canadian workers must continue to share in this growth."

Facsimile and the Post Office

Telephone company officials, some of them at least, have been curious about the contract which the U. S. Post Office announced several weeks ago it was making with respect to installing a fast facsimile mail service. But the post office has suddenly clammed up on the deal. It is probably a case of red tape or bureaucratic jitters. But right now the post office is not talking much about its plans, contractual or otherwise.

What probably happened is that the post office publicity had a little back-of-the-scenes collision with the traditional post office policy of protecting the confidential nature of intra-administration information not officially released for Congress or the public. Anyhow, an issue arose when the chairman of the House Government Information Subcommittee asked Postmaster General Summerfield what he was going to tell the public about a $90,540 development contract for a facsimile mail transmission system. Summerfield handed the problem to his general counsel, Herbert B. Warburton, who wrote Chairman John E. Moss (D., Cal.): "All information about this department's examination of this matter is available to the public." But only four paragraphs later, the post office official contradicted himself. "Copies of the contract are not available in response to the random inquiries of the public," he said.

The questioning of the Post Office Department on its policies regarding this contract is part of a long subcommittee struggle with the executive branch on the withholding of information. Warburton told Moss that, though the post office would not give copies of the development contract to the public, they "were available to the appropriate committee of Congress." The initial request was for the contract with the International Telephone & Telegraph Co. While refusing to make the actual contract available, Warburton said "this department will advise any member of the public of the concept which led to the contract's formulation, its terms, and why this subject should be explored at this time."

WU Sells Its Cables

Complying with an FCC order to get out of the international telegraph business, Western Union last week filed with the commission a contract to sell its overseas and foreign cable system to Barnes Investing Corp. of Chicago, Ill. The deal, still subject to FCC approval and several other conditions, is said to involve a cash purchase price of 13.5 million dollars. One of the conditions of the sale is that the purchaser take over and release Western Union entirely from its long-term leasing obligations with Anglo American Telegraph Co., Ltd.

Management Courses Attract Wide-Spread Interest

More and more telephone companies are recognizing the value of having employes attend management and engineering courses conducted by various universities and colleges.

As far as the Independents are concerned, there are two major courses—USITA's management development course at the University of Kansas and its telephone engineering conference at Michigan State University.

The Bell System companies for years have believed in the worth of management training courses. A summary of these courses attended by Bell personnel follows:

Humanities courses at Dartmouth (8 weeks), Northwestern, Pennsylvania (9 months), and Williams (8 weeks). All except Northwestern are sponsored by the respective institutions and are open to other businesses.

Of the other management training courses attended by Bell System personnel, the following six are regularly and nationally used:

Carnegie Institute of Technology—program for executives—9 weeks.
Columbia University—executive pro-

Correction

In our New Products Section of Feb. 13, we inadvertently indicated that by requesting NP1268, the reader would receive a free indexing kit and instruction booklet on microfilmed records from the Recordak Corp. The cost of the booklet and kit is $7.50. Inquiries directed to NP1268 will be passed on to Recordak Corp.

gram in business administration — 6 weeks.

Harvard Business School—advanced management program—13 weeks; program for management development—17 weeks.

Massachusetts Institute of Technology — Sloan Fellowship program — 12 months; senior program for executives —10 weeks.

Northwestern University — institute for management — 4 weeks.

University of Michigan — public utility course — 4 weeks.

In addition, associated companies of the Bell System from time to time send men to management training courses offered within their territories, such as Stanford Business School's executive development program (8 weeks), University of Richmond's program for executive development, and Wabash College's personnel development program (10 weeks over 5 years).

This participation is determined solely by each associated company in terms of its recognized needs. As a consequence the number of these courses being used varies considerably from year to year.

N. Ill. Company Names D. L. Weed Area Manager

D. Lloyd Weed has been named area manager of the Northern Illinois Telephone Co. He replaces W. C. Olson who continues to be general manager of all the Illinois properties, with his headquarters in Chicago.

Mr. Weed's telephone career began in 1916, when he joined Illinois Bell Telephone Co. as a lineman in the Forreston and Byron area.

During World War I, he served in the Navy, making three round trip crossings of the Atlantic ocean on troop transports.

He became associated with the former Lanark Mutual Telephone Co. on Sept. 1, 1919, as a lineman. Six years later he was elected to the company's board of directors and became manager in Lanark in 1930.

Other area manager assignments are Warren Houtcooper, who is responsible for the Port Byron, Albany, Cordova, Erie and Hillside exchanges, and Paul Allen who has charge of the Farina, Edgewood and Watson exchanges.

Government Interference

". . . more competition in more markets is a badly needed emphasis in government policy. . . . In both economic analysis and policy, the pendulum has swung too far toward public interference in markets of various kinds."—GABRIEL HAUGE, *Chairman, finance committee, Manufacturers Trust Co., New York, N. Y.*

Whatever your brush problem

Line?

Roadside?

Right-of-way?

WEEDONE can solve it!

With the right background—Chemical control of weeds and brush has developed along established lines of procedures and practices. Amchem initially pioneered the major advances in the field, has originated many of today's accepted procedures and products for efficient, economical weed and brush control. Your problems are in *experienced* hands when you hand them to Amchem!

With the right approach—Amchem's corps of weed and brush specialists are basically application specialists. Combining comprehensive theoretical and practical experience they are able to offer all industry a realistic approach to *any* weed or brush problem. These specialists have developed a variety of efficient weed and brush eradication programs over thousands of miles of line, roadside and right-of-way areas once choked and inoperable due to infestation.

With the right product—Amchem's tremendously diversified product line is your assurance that the right weed and brush killer is available and will be utilized for your specific problem. Weedone Brush Killers, for example, have been used in the field for years and proven eminently successful in eliminating weeds and brush wherever they are a problem. Why not bring your problems to Amchem?

Amchem and Weedone are registered trademarks of Amchem Products, Inc.

AMCHEM PRODUCTS, INC.
AMBLER, PA.

Please send me copies of your "Brush Control" brochure and full information on the uses of Weedone Brush Killers.

Name_____ Title_____

Company_____

Address_____

City_____ Zone____ State_____

AMCHEM

WEEDONE

BRUSH KILLERS

another chemical development of

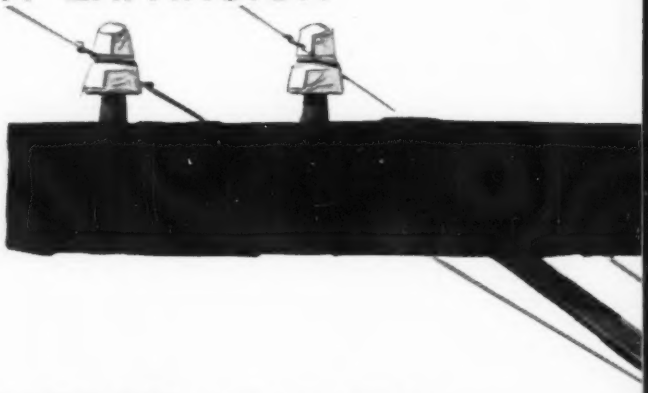
Amchem Products, Inc.

(Formerly American Chemical Paint Co.)

St. Joseph, Mo. • AMBLER, PA. • Niles, Calif.

AE-Lenkurt

HAS **EVERYTHING** YOU NEED FOR PROFITABLE CIRCUIT EXPANSION



LENKURT SHORT-HAUL CARRIER, for instance . . .

Lenkurt's Type 45C family of open-wire carrier systems offers an inexpensive way of expanding circuit groups beyond the capacity of low-frequency carrier.

Types 45CA, CB, CC and CD provide four 4-channel allocations in the frequency range of 2 kc. to 156 kc., with all the advantages of Type 45 equipment for large circuit groups. In addition, the Type 45C terminals provide direct interconnection at carrier frequencies with all other 45-class systems for open-wire, cable or radio, and coordinate with W. E. Type O carrier.

Type 45C systems are transistorized, require a minimum of space, and employ interchangeable plug-in channel units. And each channel has its own compandor and regulator.

The AE-Lenkurt team of *telephone* engineers will handle as much of the planning and installation as you wish. And AE will provide "follow-thru" service *for the life of the equipment.*

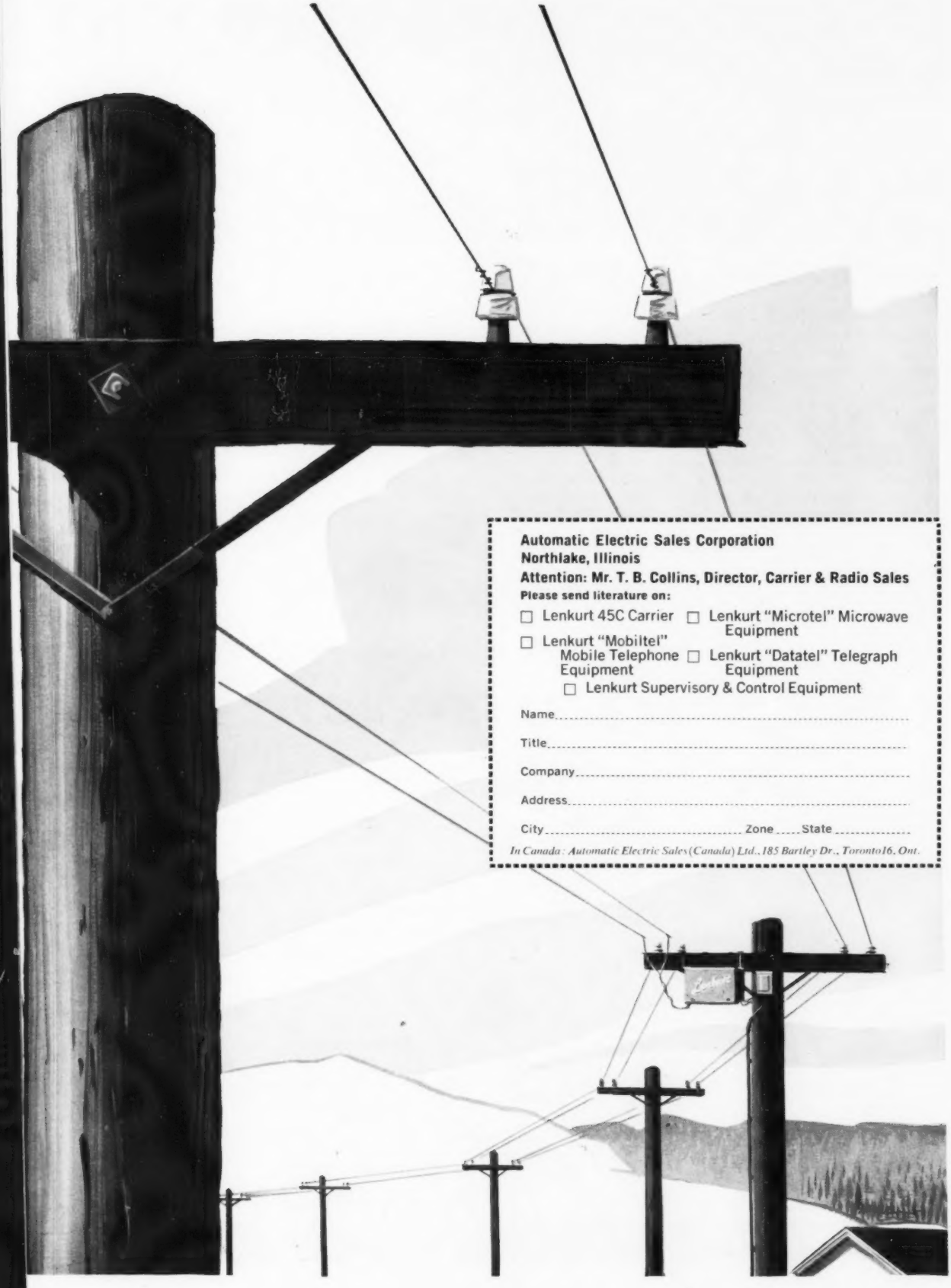
For full information on the Lenkurt Type 45C systems or companion equipment, call your Automatic Electric representative, or fill in and mail coupon today.

ALL YOUR COMMUNICATIONS NEEDS
FROM ONE
DEPENDABLE SOURCE

AUTOMATIC ELECTRIC

Subsidiary of
GENERAL TELEPHONE & ELECTRONICS

GENERAL SYSTEM



Automatic Electric Sales Corporation
Northlake, Illinois
Attention: Mr. T. B. Collins, Director, Carrier & Radio Sales
Please send literature on:

- ☐ Lenkurt 45C Carrier
- ☐ Lenkurt "Microtel" Microwave Equipment
- ☐ Lenkurt "Mobiltel" Mobile Telephone Equipment
- ☐ Lenkurt "Datatel" Telegraph Equipment
- ☐ Lenkurt Supervisory & Control Equipment

Name.....

Title.....

Company.....

Address.....

City..... Zone ..... State .....

In Canada: Automatic Electric Sales (Canada) Ltd., 185 Bartley Dr., Toronto 16, Ont.

Representatives of Automatic Electric Sales Corp. are shown at a general meeting during the sales conference at the corporation's Northlake, Ill. headquarters.

AE Representatives Meet For Sales Conference

Some 150 communications products division sales representatives of Automatic Electric Sales Corp. gathered at the company's Northlake, Ill., headquarters on Jan. 25 to 29 for the division's annual sales conference.

All district managers, field and home office sales personnel, staff and operating engineers attended the five-day meeting which was designed to provide sales representatives with information on the company's latest communications products and techniques.

After a welcoming address by H. C. Smith, vice president, communications products division, D. H. Deaver, sales corporation president, and H. F. Lello, AE president, outlined the objectives of the 1960 sales program.

The program featured concentrated product and service presentations.

In addition to general sales sessions, specialized product groups met separately to discuss items of particular significance in their fields of interest. The variety of topics covered ranged from group meetings on station apparatus, advertising and sales promotion, and marketing research, to special conferences on Metropolitan Automatic Exchange (MAX), Private Automatic Exchange (PAX), Private Automatic Branch Exchange (PABX), Strowger Automatic Toll Ticketing (SATT), order handling, supplies, carrier and radio, customer financing, etc.

Three case study discussions highlighted activities during the opening days of the conference. Led by district managers, the cases consisted of hypothetical situations in which a sales problem was presented. A chosen panel was assigned to outline a complete sales campaign to fit the customer's needs. Non-panel members also added suggestions to improve the over-all content of the proposed program.

On Jan. 27, a banquet was held for all conference representatives. Guest

Used By: ELECTRICIANS • TELEPHONE COMPANIES • RADIO & TV SHOPS, ETC.

ARROW T 25

TAKES 3 STAPLE SIZES: 3/8" 7/16" 9/16"
AVAILABLE IN: Brown, Ivory, Beige, Monel, Bronze, Natural

LOW VOLTAGE WIRE TACKER

FOR FASTER, SAFER, MORE SECURE FASTENING OF ANY LOW VOLTAGE WIRE UP TO ¼" IN DIAMETER, INCLUDING: BELL WIRE • THERMOSTAT WIRE • INTERCOM WIRE • TELEPHONE WIRE • RADIANT HEATING • JACKETED WIRE (JKT) • ELECTRICAL WIRING • CO-AX CABLE.

CANNOT JAM!
(PATENTED NON-CLOGGING MECHANISM)

Tapered striking edge gets into tight corners!

ARROW T-75 SHEATH CABLE TACKER
FOR ANY INSIDE OR OUTSIDE CABLE UP TO ½" IN DIAMETER
• Fastens ROMEX up to 12 - 3
• Fastens inside wire up to 26 pair
TAKES 3 STAPLE SIZES: 9/16" 5/8" 7/8"

WRITE FOR CATALOG

ARROW FASTENER COMPANY, INC. ONE JUNIUS STREET • BROOKLYN 12, N. Y.

speaker for the occasion was **Maj. J. F. Reid**, public information officer, Air Force Missile Test Center, Patrick AFB, Fla., who presented a film and slide lecture on the Air Force missile program.

New Posts at Stromberg For Price and Fogg

Carl H. Price has been named to the new post of sales supervisor for the Kansas City branch office by **T. C. Thompson**, general sales manager of Stromberg-Carlson's Telecommunication Division. Mr. Price will be succeeded as sales representative in the East Texas territory by **Charles E. Fogg**.

Mr. Price will assist branch manager **R. F. Fairly** in coordinating the sales effort in that area.

Mr. Price began his career in 1927, when he became a trouble shooter for the Peoples' Telephone Union of Maryville, Mo., his home town. Later, he accepted a similar position with the Hamano Telephone Co.

He then joined the Suttle Equipment Corp. of Lawrenceville, Ill., and, in his eight years there, he held the positions of sales representative, chief engineer, plant superintendent, and factory manager.

C. H. PRICE

In 1947, he went to Stromberg-Carlson as a sales representative in the East Texas-Louisiana territory. He has served in that region for the past 12 years—a period of outstanding progress for Independent companies. Mr. Price is a member of the Independent Telephone Pioneer Association.

Charles Fogg worked with the Independents in Tennessee, Kentucky and southern Indiana at the time when that territory first felt the effects of industrialization, and the telephone industry

(Continued on page 58)

Leasing

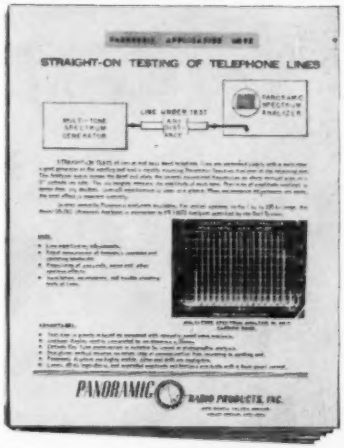
TO THE TELEPHONE INDUSTRY

SERVICE TRUCKS
DERRICKS
LINE TRUCKS
TRENCH DIGGERS
OTHER RELATED EQUIPMENT

DON'T PAY PREMIUM RATES!
Lease from Leasing Specialists

We Solicit Your Inquiry

J. A. BELL & CO.
120 SOUTH LA SALLE STREET • CHICAGO 3, ILLINOIS



HOW TO SPEED..

- ☐ **Line Equalization Adjustments**
- ☐ **Frequency Response & Bandwidth Measurements**
- ☐ **Installation, Maintenance and Trouble Shooting Tests**

Send today for Panoramic's NEW Application Note "Straight-On Testing of Telephone Lines"

Contains complete information on ONE-STEP LINE EQUALIZATION TESTS, with multi-tone straight-on method and a rapid scanning Panoramic Spectrum Analyzer.

dependable CERTIFIED SPECIFICATIONS *for accurate data*

Write, Wire, Phone TODAY for your copy

the pioneer is the leader

Panoramic
RADIO PRODUCTS, INC.

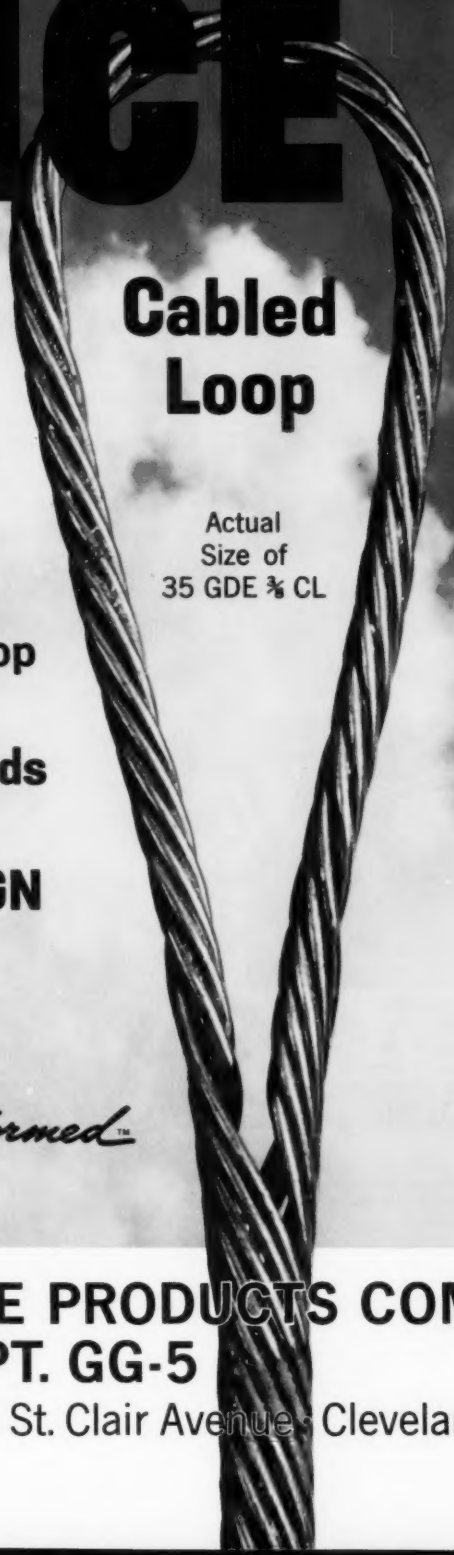
PANORAMIC RADIO PRODUCTS, INC., 564 So. Fulton Ave., Mount Vernon, N. Y.
Phone: OWens 9-4600 • Cables: Panoramic, Mt. Vernon, N. Y. State

SEE HOW all your guying requirements can be met by applying Preformed GUY-GRIP dead-ends.

SEND for 32-page Application Procedures book, "THE GOOD GUY," and the 24-page pocket-size companion booklet.

Preformed™ **GUY-GRIP dead-ends**

CHOICE



Cabled Loop

Actual Size of 35 GDE ⅜ CL

Standardize on one...
or the other...
or a combination of both.
Choose Open Helix Loop or Cabled Loop
GUY-GRIP dead-ends
TO SUIT YOUR SPECIFIC DESIGN REQUIREMENTS

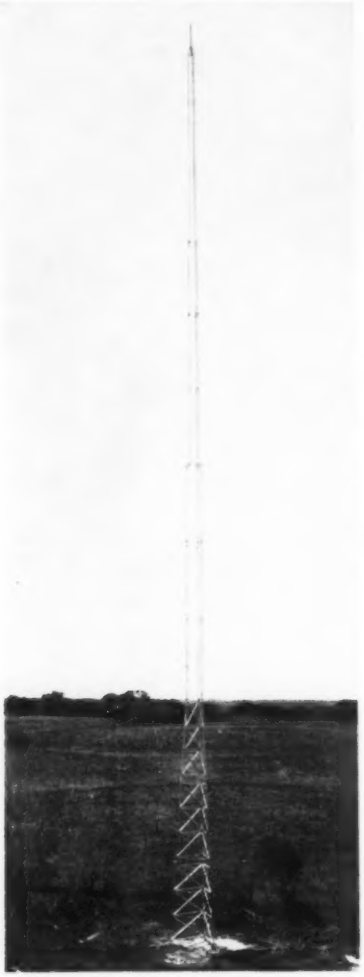
You can look up to Preformed™

TRADEMARK — "GUY-GRIP"

Patented — U. S. Patent Number 2,761,273

PREFORMED LINE PRODUCTS COMPANY
DEPT. GG-5
5349 St. Clair Avenue · Cleveland 3, Ohio

New ROHN
SELF SUPPORTING
COMMUNICATION TOWER



★ 130 ft. in height, fully self-supporting!

★ Rated a true HEAVY-DUTY steel tower, suitable for communication purposes, such as radio, telephone, broadcasting, etc.

★ Complete hot-dipped galvanizing after fabrication.

★ Low in cost—does your job with BIG savings—yet has excellent construction and unexcelled design! Easily shipped and quickly installed.

FREE *details gladly sent on request. Representatives coast-to-coast.*

ROHN *Manufacturing Co.*
116 Limestone, Bellevue, Peoria, Illinois

"Pioneer Manufacturers of Towers of All Kinds"

C. E. FOGG

there faced its greatest challenge. After a short time in the home office, he was sent to the West Coast in the Washington-Oregon sector. There an accelerated program of dial conversion took place coincident with his assignment.

Mr. Fogg was born in Slidell, La., and attended schools in New Orleans. Thus, he is returning to an area he knows very well.

His telephone career began in 1939 when he was an installer for the Western Electric Co. He served with that company until entering the armed forces three years later. As a member of the U. S. Army Signal Corps from 1942 to 1945, he served as wire chief and installation manager on the Island of Guam.

Mr. Fogg then returned to Western Electric and remained there as installation foreman until joining Stromberg-Carlson in 1950 in the same capacity. As foreman he supervised the initial phase of converting the telephone system at Sarasota, Fla., to XY Dial now in service.

In 1952 he was appointed to the sales engineering staff. Later this year, he became a sales representative serving the Tennessee-Kentucky-Indiana territory, and since that time he has devoted himself almost exclusively to sales work. In 1957 he went to Rochester to strengthen the national sales engineering force.

Honor N. Y. Employes with 80 Years Combined Service

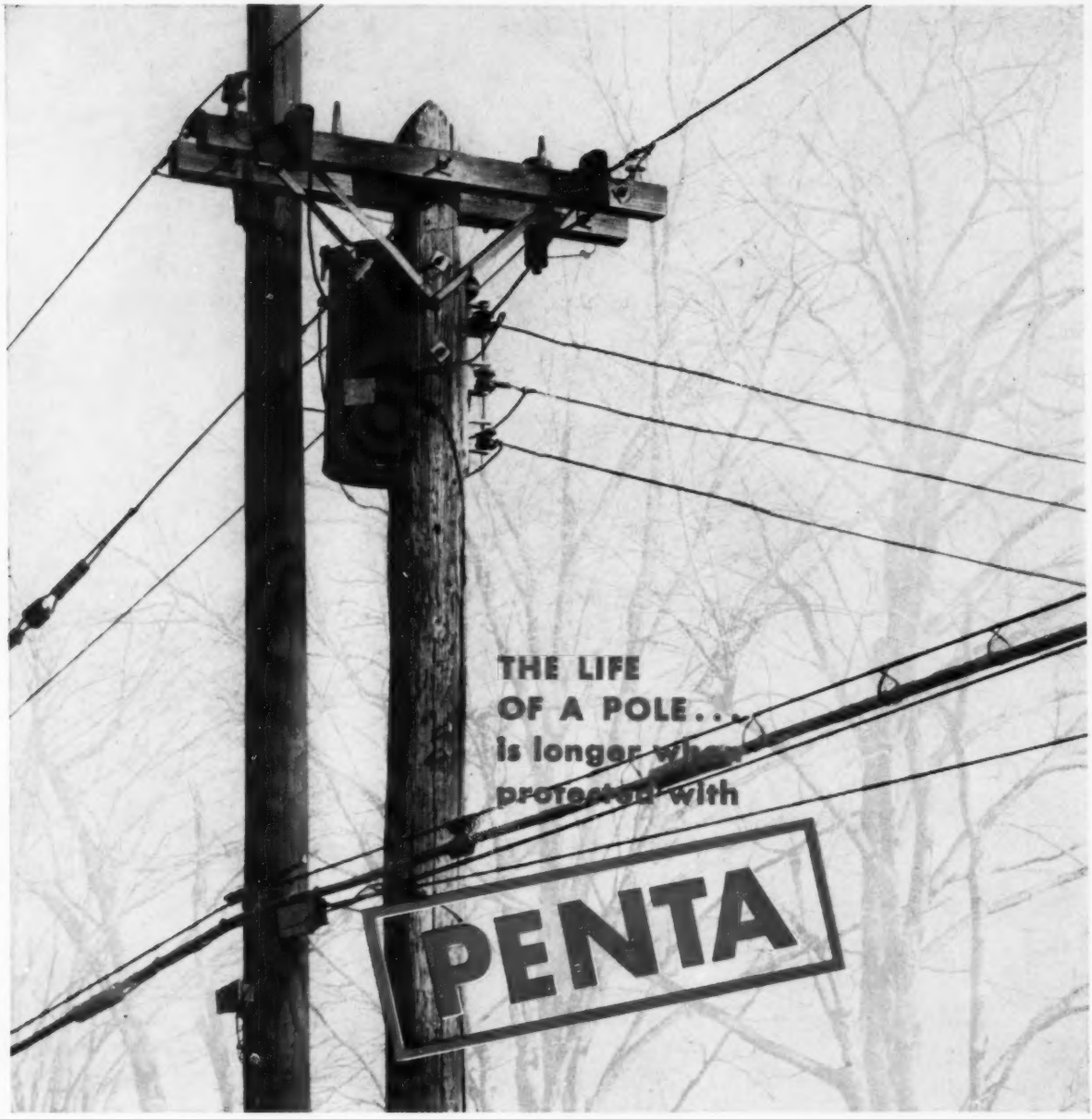
Two retiring Orange County Telephone Co. employes, Miss Madeleine M. Fallon, and Vernon J. Stedner, were honored by the company at a testimonial dinner in Middletown, N. Y., on Jan. 30.

Miss Fallon had completed 47 years as a toll operator in the traffic department, and had the longest service record in this capacity in the history of the company.

Stedner's term of service was 34 years. He had worked in outside plant during the entire period.

Company president, Charles C. Chappell, paid tribute to the combined record of more than 80 years service represented in the two telephone careers, and presented service certificates and gifts of clocks to Miss Fallon and Mr. Stedner.

Honored at Jan. 30 retirement dinner in Middletown, N. Y., were two veteran Orange County Telephone Co. employes, (left) Miss Madeleine M. Fallon; and (right) Vernon J. Stedner. Charles C. Chappell, company president, presented service certificates and gift clocks.



Today, more and more men with maintenance on their minds will tell you . . . it's good business to protect lumber with PENTA treatment. Here's why:

1. Costs no more — Service records show PENTA treatment gives poles, cross ties and other lumber for exposed structure extra long life. Yet PENTA treatment costs no more than ordinary preservatives.

2. Won't leach out — Because PENTA is an oil-borne rather than water-soluble preservative, it doesn't leach out, leaving wood vulnerable to rot and termites.

3. Clean to handle — Construction and maintenance supervisors know that workmen handle clean wood faster, more efficiently — and with fewer kicks!

Reichhold is a major supplier of PENTA to the wood industry and to wood users. If you haven't done so yet, investigate this modern method of protecting your lumber investments — write for the name of your nearest Reichhold distributor of PENTA.

REICHHOLD

Synthetic Resins • Chemical Colors • Industrial Adhesives • Phenol
Hydrochloric Acid • Formaldehyde • Phthalic Anhydride
Maleic Anhydride • Ortho-Phenylphenol • Sodium Sulfite
Pentaerythritol • Pentachlorophenol • Sodium Pentachlorophenate
Sulfuric Acid • Methanol

REICHHOLD CHEMICALS, INC.,
RCI BUILDING, WHITE PLAINS, N. Y.

Creative Chemistry . . . . . Your Partner in Progress

TELEPHONE COMPANIES
•
UTILITIES
•
TURNPIKE COMMISSIONS
•
PIPELINE COMPANIES
•
POLICE
•
AND OTHER

MICROWAVE

USERS *specify*

Typical design of Stainless microwave tower for hurricane area.

STAINLESS TOWERS

Let Stainless' experienced engineering staff assist you with your microwave or radio tower problems.

Ask today for your free booklet describing many Stainless installations.

Stainless, inc.
NORTH WALES • PENNSYLVANIA

Kellogg Consolidates All Manufacturing and Sales

Consolidation of manufacturing and sales operations at Kellogg Switchboard & Supply Co. was announced in Chicago on Feb. 11 by George A. Strichman, president of the International Telephone & Telegraph Corp. division.

C. J. TREES

Three major product departments have been formed—central office switching, telephone and transmission, and communication systems—enabling Kellogg to streamline its management organization and to keep pace with the company's rapid growth since affiliating with the ITT System in 1952, Mr. Strichman said.

A. F. CASSEVANT

The moves have resulted in establishment of three new executive positions. Named vice president-marketing is Charles J. Trees, formerly vice president-American operations for Centrax Ltd., of London.

For almost three years prior to that post, Mr. Trees was with the flight propulsion division of the General Electric Co.

A Massachusetts native, he was also associated with Indiana Gear Works, and is a former lieutenant colonel of the U. S. Army.

He holds a bachelor of science degree from Purdue University.

Albert F. Cassevant, who retired recently from the U. S. Army with the rank of brigadier general, fills the new vice-president-communication systems post.

General Cassevant graduated from U. S. Military Academy in 1931, and, after eight years in the Coast Artillery, was assigned to Ft. Monmouth to study radar technique in the earliest days of that electronic defense weapon. Subsequent assignments included duty in the Philippines, Japan, at the National War College and Armed Forces Staff College, and most recently as commanding general of Ft. Monmouth, N. J., home of the U. S. Signal Corps.

S. E. CRITES

Sherman E. Crites becomes vice president-general manager for telephone and transmission, under the announced consolidation plan. Mr. Crites, who holds a master's degree in aeronautical engineering, is experienced in aircraft design and marketing. A Nebraska native, he was associated with Pan American Airlines for six years, acting also in a liaison capacity with the Civil Aeronautics Administration.

Since 1951 he has been employed by the General Electric Co., small aircraft engine department.

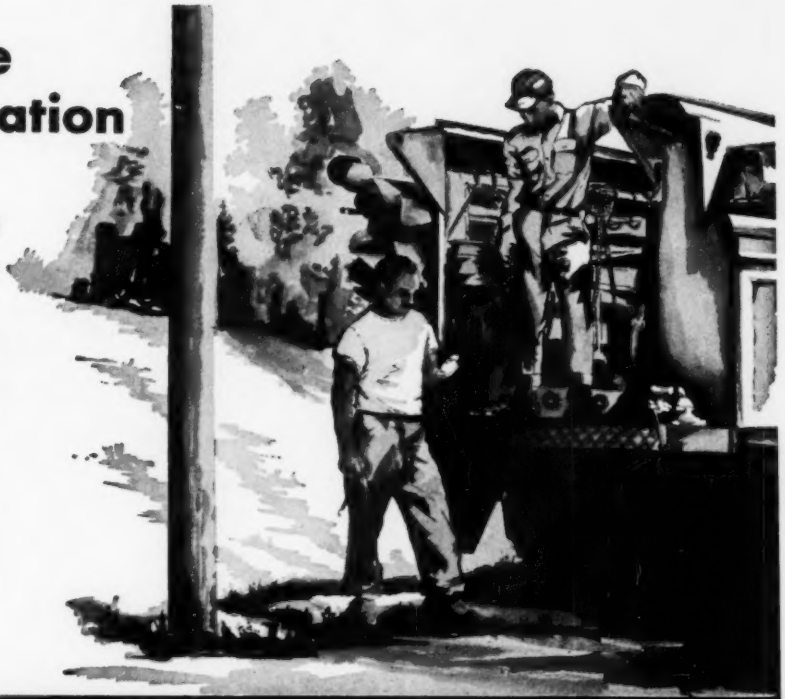
The appointment of Richard Griebel as vice president and general manager-central office equipment was previously announced.

Kellogg is the domestic communications equipment producer for the ITT

If you want the best in preservation

Specify T-C pressure treated poles

The T-C Treating Process (we think you'll agree) is the best yet developed by modern Technology. Each step in production is subject to precise and accurate control including timber selection, manufacture, moisture removal and treatment. And, only the finest chemical preservatives are used. That's why we say, Specify T-C and get the best in preservation.



Specify T-C

DISTRIBUTED BY AUTOMATIC ELECTRIC SALES CORP. AND LEICH SALES CORP.

TAYLOR-COLQUITT TIMBER CONSERVATION T-C

TAYLOR - COLQUITT CO.

SPARTANBURG, SOUTH CAROLINA

PLANTS AT SPARTANBURG, SOUTH CAROLINA AND WILMINGTON, NORTH CAROLINA

Ruling Principles of Utility Regulation

RATE OF RETURN

by Ellsworth Nichols

500 pages
$15.00

Published by Public Utilities Reports, Inc. *and kept up-to-date by periodic pocket supplements.*

—the book you've been waiting for

One of the most important subjects, if not the ***most important subject***, constantly confronting utility managements, regulatory commissions and others concerned, is the ***amount of return*** to be ***allowed public utility companies*** and ***how best*** to ***determine that return.*** After almost four years of research, study, and analysis, Ellsworth Nichols, Editor of PUBLIC UTILITIES REPORTS and author of other publications on regulation, has completed his new volume ***"RATE OF RETURN."***

Throughout the work, emphasis is placed on the ***ruling principles of courts and commissions*** concerning the ***various factors to be considered, the weight to be accorded such factors,*** and ***illustrations*** of the ***application*** of the ***principles discussed.***

The volume contains 25 chapters, each dealing with an important phase of the subject.

Send All Orders to

TELEPHONY PUBLISHING CORP.

608 South Dearborn Street **Chicago 5, Ill.**

PAGE WIRE

—now offers ACCO *Aluminized* Telephone Wire and Strand

Here are two new examples of PAGE's pioneering leadership—the same kind of leadership that earlier was responsible for the development of Stainless Steel Strand, and was instrumental in developing Stainless Steel Lashing Wire:

1 • Our new ACCO *ALUMINIZED* Telephone Wire, combining the strength of steel with the corrosion-resistance of a bonded coating of aluminum. Available in these grades: Best Best (BB); Grade 85; Grade 135; Grade 190 (Support Wire) and Steel Construction Wire.

2 • Our new ACCO *ALUMINIZED* Steel Strand, also with a bonded coating of corrosion-resisting aluminum. Made in 3-, 7- and 19-wire construction. Available in Common, Siemens-Martin, High Strength, Extra High Strength and Utility grades.

We consider the unique aluminized coating of these wires to be superior to Class C galvanizing—in longer service life under virtually all conditions. Yet, with all their advantages, you can buy them at *much lower prices!*

For full details, *see your Telephone Supply Distributor —or write our Monessen, Pennsylvania, office.*

Page Steel and Wire Division
AMERICAN CHAIN & CABLE

ACCO

Monessen, Pa., Atlanta, Chicago, Denver, Detroit, Houston, Los Angeles, New York, Philadelphia, Portland, Ore., San Francisco, Bridgeport, Conn.

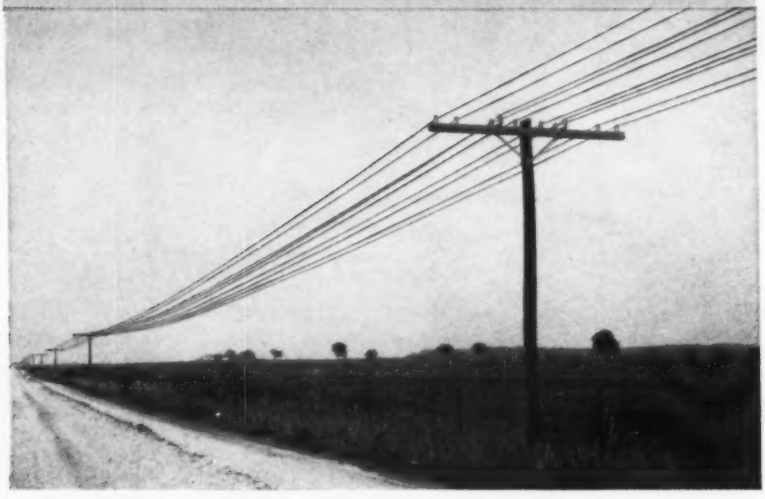
Crapo HTL-135

High Tensile Line Wire

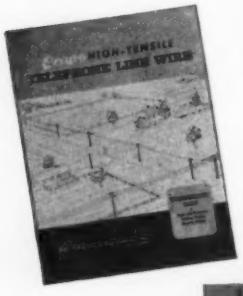
MADE TO WITHSTAND HEAVY STORM LOADS

Time and time again, *Crapo* HTL-135 has demonstrated its ability to stand up under heavy ice and wind loads when other conductors failed. This can be attributed to the fact that *Crapo* HTL-135 combines high strength with high fatigue endurance plus superior elastic qualities which enable it to spring back into place when loads are removed. The result: service interruptions are minimized, re-sagging is seldom necessary, where this rugged telephone wire is used.

The excellent telephonic transmission characteristics of *Crapo* HTL-135 make practical subscriber loops of 14 to 15 miles with normal voltages and equipment. Longer loops are possible where higher voltages and more sensitive telephone sets are employed. For dependable, long-span, low cost rural lines, specify *Crapo* HTL-135.



HERE'S PROOF OF DEPENDABILITY



The **Crapo** HTL-135 in this typical rural line of 300-foot spans was subjected to two heavy ice storms within 14 months. This photo shows the line, without resagging, three months after the second storm.

Write for Manual TM-59 containing complete engineering data!

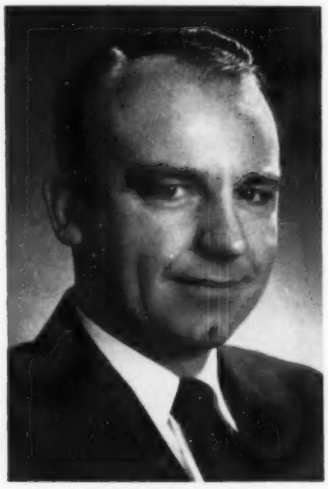
Crapo HTL-135

INDIANA STEEL & WIRE CO., INC.
Muncie, Indiana

system. In addition to commercial telephone and switching devices, the company is actively engaged in defense electronics and missile communications projects.

Culbertson Is Lenkurt's Director of Engineering

Alan F. Culbertson has been appointed director of engineering at Lenkurt Electric Co., Inc., San Carlos, Cal.



A. F. CULBERTSON

He will be responsible for development of telecommunications and allied systems for commercial and government use, as well as for supporting engineering activities including component development and quality control.

Mr. Culbertson has been with Lenkurt, a subsidiary of General Telephone & Electronics, since 1952 when he was employed as an applications engineer.

He has served as manager of transmission engineering and of products planning. For the past year and a half, he has headed the mobile telephone group which has developed and marketed new systems for vehicular telephone service.

Previously, Mr. Culbertson spent six years with American Telephone & Telegraph's Long Lines Department in transmission and equipment engineering positions. In the U. S. Navy he served as a communications and electronics officer.

Culbertson has the B.S.E.E. degree from Purdue University. He is a senior member of the Institute of Radio Engineers and a member of the American Institute of Electrical Engineers and of Eta Kappa Nu. He is the author of many papers and articles on telecommunications.

Wishes to announce to its many friends and customers the inauguration of direct manufacture to customer sales, engineering, and service assistance for its carrier systems and angular modulated transistorized products.

Panhandle sales will be made direct to you exclusively through the services of the newly formed International Teletronics, Inc. This organization consists of many well known communication engineers and sales personnel. Panhandle is proud to offer its products to the communication industry on a direct basis through this new companion organization. Panhandle's engineering and service personnel will also assist International Teletronics in offering a complete line of carrier systems and services to the communication industry.

PANHANDLE ELECTRIC SALES, INC.

P.O. BOX 248, ARLINGTON, TEXAS
TWX—ARL 8228 • PHONE CR 5-3301

L. Q. KRASIN, *President*
J. G. WALKER, *General Sales Manager*

INTERNATIONAL TELETRONICS, INC.

644 BRANIFF BLDG. • 300 EXCH. PK. N.
DALLAS 35, TEXAS • PHONE FLeetwood 7-8353

O. C. BAILEY, *President*
K. C. TOMPERS, *Vice President and Sales Manager*

BROWN
WOOD
PRESERVING
CO.

HOME OFFICE
Commonwealth Building
Louisville, Kentucky

★

PLANTS
Louisville, Kentucky
Brownville, Alabama
Live Oak, Florida

★

Large stocks of power, telephone and barn poles, timber and crossarms.

★

SERVING THE
TELEPHONE INDUSTRY
FOR 35 YEARS

Bailey and Tompers Form New Company in Texas

The formation of International Teletronics, Inc., 644 Braniff Airways Building, Dallas, Tex., has been announced by its incorporators, O. C. Bailey and K. C. Tompers. Mr. Bailey is president of the company and Mr. Tompers is vice president.

O. C. BAILEY

According to Mr. Bailey, the company will handle sales and other services involving electronic products for the communications industries, including the telephone industry.

The company has been appointed as exclusive distributor of all products and developments of Panhandle Electric Co. of Arlington, Tex., including Panhandle's new Type X cable exchange carrier, LL subscriber and trunk carrier, and concentrator trunk carrier.

International Teletronics plans to establish sales and service offices in strategic geographical locations throughout the U. S. and Canada, according to Mr. Bailey.

Both Mr. Bailey and Mr. Tompers have been associated with the telephone industry, including the operating and manufacturing business, for many years.

A native of Greenville, Tex., Mr. Bailey's entire career has been in the telephone field. He started with Southwestern Bell Telephone Co. and was advanced from student engineer to assistant chief transmission test engineer for coaxial cable. Mr. Bailey later served as president of the Cimarron (Okla.) Telephone Co. and the Southwest Construction Co. Also he was a director of the Ruidoso (N. Mex.) Telephone Co.

Mr. Bailey served two tours of duty as a flight officer in the middle eastern theater and later in the China-Burma-India theater. He was decorated with the distinguished flying cross, air medal with six oak leaf clusters, the distinguished unit citation, and area ribbons with four bronze battle stars.

On his return to civilian life in 1945, Mr. Bailey joined the Kellogg Switchboard & Supply Co. as a field representative in Texas. During the next 15 years, he was advanced through the Kellogg sales division to vice president and director of marketing, the position he resigned on Feb. 1 to become associated with International Teletronics, Inc.

K. C. TOMPERS

Mr. Tompers, a native of Susanville, Cal., has had wide experience in the telephone operating field, having served as plant superintendent of the San Joaquin Telephone Co. of Manteca, Cal.; equipment engineer of West Coast Telephone Co. at Forest Grove, Ore., and central office equipment engineer of Public Utilities California Corp. (now Citizens Utilities Co.).

In 1947, Mr. Tompers joined Kellogg Switchboard & Supply Co. as equipment installer. Later he became a field representative, division sales manager at St. Paul, Minn., western regional manager, and field sales manager with headquarters in Chicago. In Aug. 1959, he became marketing manager for Kellogg, which position he resigned on Feb. 1 to join International Teletronics, Inc., as vice president.

Hertzberg Is Philco's Vice President-Marketing

The appointment of Joseph M. Hertzberg as vice president-marketing for Philco Corp.'s government and industrial group was announced recently by Henry F. Argento, vice president and general manager of the G&I group.

In his new post, Mr. Hertzberg will be responsible for sales and marketing

Partners in Communication . . .

CF&I Galvanized Steel Strand and telephone cable

In deserts . . . over snow-clad mountains . . . along the seashore . . . wherever telephone cables are needed, you'll find CF&I Galvanized Steel Strand. This messenger wire is tough enough to support the heaviest cable, yet pliable enough for easy installation. And CF&I Strand is jacketed in zinc to provide years of corrosion-resistant service.

CF&I Galvanized Steel Strand is made in accordance with ASTM specification A-122 in seven- and three-wire constructions when used as messenger and guy wire. In addition, CF&I will make strand to customers' individual specifications. For fast service see your local distributor or call the nearest CF&I office.

GALVANIZED STEEL STRAND
THE COLORADO FUEL AND IRON CORPORATION

In the West: THE COLORADO FUEL AND IRON CORPORATION—Albuquerque • Amarillo • Billings • Boise • Butte • Denver • El Paso Farmington (N.M.) • Ft. Worth • Houston • Kansas City • Lincoln Los Angeles • Oakland • Oklahoma City • Phoenix • Portland • Pueblo Salt Lake City • San Francisco • San Leandro • Seattle • Spokane • Wichita

In the East: WICKWIRE SPENCER STEEL DIVISION — Atlanta • Boston Buffalo • Chicago • Detroit • New Orleans • New York • Philadelphia

CF&I OFFICE IN CANADA: Montreal

CANADIAN REPRESENTATIVES AT: Calgary • Edmonton • Vancouver Winnipeg

7513

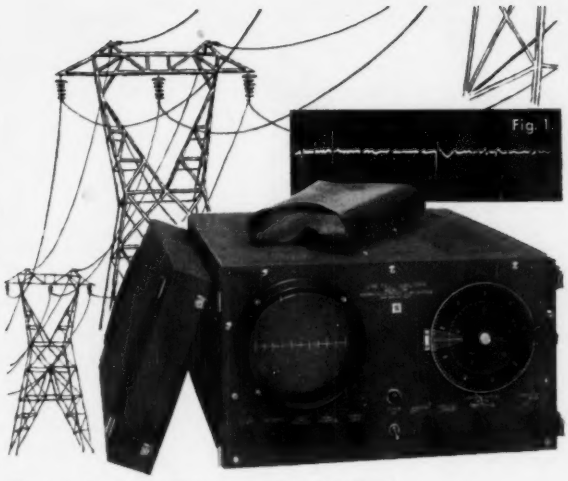


Figure 1. Display of 60 Kv line grounded at 27 miles.

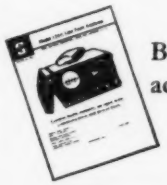
Locate circuit faults exactly ...½ to 200 miles distant

Communication and power lines
Use on any open wire line
Direct reading, simple to use
Use at carrier terminal, powerhouse, sub-station

Shorts, grounds or opens up to 200 miles away can be located within a few yards with the improved Sierra 124A Line Fault Analyzer. The instrument, operating on radar principles, sends a high amplitude pulse along the line under test. Discontinuities, even capacitors and transformer banks, appear clearly; a complete picture of the line and its condition appears on the radar-type "A" scope.

Two Pulse Widths

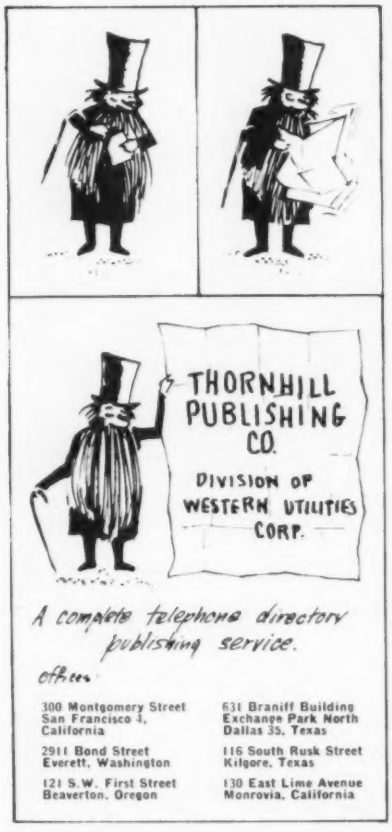
To insure maximum readability, two pulses — a 1 microsecond, 1,000 volt pulse or an 8 microsecond, 500 volt pulse —are provided. Other features include a sweep delay, movable distance step, sweep repetition rate of 60 cps and a high intensity flat faced cathode ray tube. Provision is made for camera attachment to the scope face.



Bulletin gives details, actual utility operating experiences

Data subject to change without notice.

Sierra Electronic Corporation
A subsidiary of Philco Corporation
4695T Bohannon Drive • DAvenport 6-2060
Menlo Park, California, U.S.A.
Sales representatives in Major Cities
Canada: Atlas Instrument Corp., Ltd., Toronto, Montreal, Vancouver, Winnipeg
Export: Frazar & Hansen, Ltd., San Francisco, New York, Los Angeles



programs for all G&I group divisions and he will report directly to Mr. Argento.

These divisions include communications and weapons, computer and industrial systems, Western Development Laboratories (Palo Alto, Cal.) and Sierra Electronics Corp., (Menlo Park, Cal.)

Prior to joining Philco, the new executive was vice president-defense marketing for Radio Corp. of America.

From 1942 to 1945, Mr. Hertzberg served in the U. S. Air Force and took an active part in the management and technical co-ordination of numerous communication, radar and navigation programs. In these assignments, he worked with the Radiation Laboratory at Massachusetts Institute of Technology, as well as the various engineering laboratories maintained by the Signal Corps, Navy, U. S. Air Force and Royal Air Force. He was awarded the Legion of Merit and the Order of the British Empire for these services.

Mr. Hertzberg is a member of the Institute of Radio Engineers.

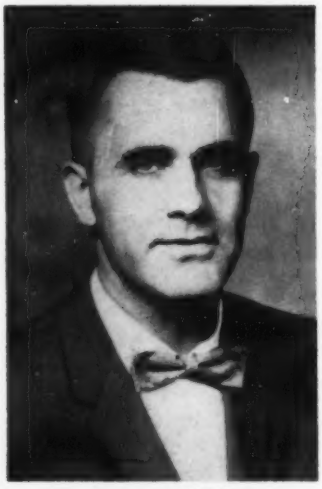
McColloch Joins C & D; Krauss to Washington

Zane W. McColloch has joined the sales organization of C & D Batteries, division of The Electric Autolite Co.

Z. W. McCOLLOCH

Mr. McColloch was formerly associated with Robert H. Welf & Associates, Inc., C & D's Cleveland, Ohio, representatives. Henry E. Jensen, vice president of C & D, announced the appointment.

Prior to joining C & D, Mr. McColloch was sales manager of the Hobart Automatic Charger Division of the Motor Generator Corp., Troy, Ohio.



E. L. KRAUSS

Eugene L. Krauss, Silver Springs, Md., has been transferred to the Washington sales office of C & D Batteries. He previously was with Mark C. Pope Associates, C & D's sales organization in Atlanta, Ga.

Prior to his joining C & D in 1956, Mr. Krauss was an engineer with Thomas A. Edison, Inc.; in both Washington and Atlanta; an engineering officer in the Navy; and an engineer with the Potomac Electric Power Co. in Washington.

He attended George Washington University and is a member of the American Material Handling Society.

CEECO TYPE C225
GALVANIZED STEEL CASE ASSEMBLIES

CEECO TYPE C225
GALVANIZED STEEL
CASE ASSEMBLIES

FOR UNDERGROUND (VAULT MOUNTING), CONTAINING 4 TO 460 COILS.

- LEAD STUB ASSEMBLIES ARE PRESSURIZED.
- PLASTIC STUB ASSEMBLIES ARE SEALED IN THERMOPLASTIC COMPOUND.

These assemblies can be equipped with voice frequency coils. Types C632 (88 MH) and C638 (44 MH) Coils are for subscriber Loading, and Types C642 (88 MH) and C641 (44 MH) coils are for use on quadded inter-office and toll cables. Special coils can be made to meet other requirements.

Write us for assistance on your loading problems.

CEECO loading coils are sold by your telephone equipment supplier.

COMMUNICATION EQUIPMENT & ENGINEERING CO.

5646 West Race Avenue • Phone EStebrook 8-3109 • Chicago 44, Illinois

GE Names W. G. Pree Head Of National Accounts

Walter G. Pree, formerly regional manager for General Electric two-way radio sales at Excelsior, Minn., has been named national accounts manager for mobile communications at GE's Communication Products department headquarters in Lynchburg, Va.

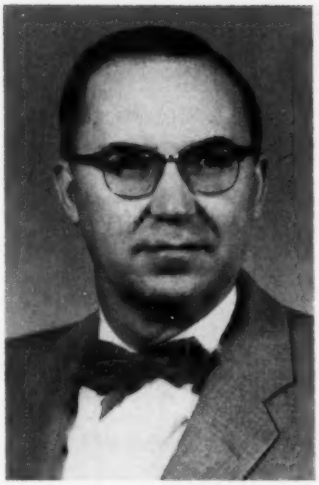
Mr. Pree will have responsibility for co-ordinating the company's two-way radio negotiations with firms who do business on a nationwide basis, such as common carrier telephone companies, railroads and similar large system users.

Additionally, he will handle the department's mobile radio export orders negotiated through Canadian General Electric Co. and G-E's International General Electric Division.

A native of Milwaukee, Mr. Pree attended Bay View High School there and the University of Wisconsin.

He entered the communications field 25 years ago as an engineer for Wisconsin broadcast stations. In 1941, he became an engineering staff member of the radiation laboratory of Massachusetts Institute of Technology in Boston.

Two years later he joined the field engineering staff of Western Electric Co. in New York. In 1946, he became



W. G. PREE

manager of the broadcast department of the Graybar Electric Co. in Minneapolis.

During World War II Mr. Pree served in field engineering advisory capacities with the British Air Ministry and the U. S. Anti-Submarine Command in England.

A senior member of the Institute of Radio Engineers, he is a past chairman of the Twin Cities Section of the IRE and was active in forming a local chapter of the IRE Professional Group on Vehicular Communications. He is a Registered Professional Engineer and is also a member of the American Association for Advancement in Science.

Sources of Light

"The light in the world comes principally from two sources—the sun, and the student's lamp."—BOVEE.

CABLE CONSTRUCTION CO.
1512 Center St. Tacoma, Washington
ENGINEERING - CONSTRUCTION
SPLICING - CABLE PLOWING
CENTRAL OFFICE INSTALLATION
World-Wide

Electric Power and Communications Construction
E. & C. CONTRACTING CO.
Box 191
Paoli, Indiana
Phone 7821

ROBERT E. FOLEY CONSTRUCTION CORP.
DESIGN—SURVEYS—APPRAISALS—Construction and Maintenance of Overhead and Underground Telephone Plant. Complete supply of poles available for emergency requirements.
48 GRISWOLD STREET
BINGHAMTON, N. Y. TEL. 2-7215

Looking for:
• Service • Reliability • Nationally Known Telephone Supplies

Then look to Lindsay, where prompt delivery of your order as specified is assured by fast, efficient, *personalized* service... backed by extensive warehousing of nationally known telephone supplies. Established in 1939, Lindsay is under second-generation management that believes a business can go only one way—forward.

LOOK TO THE LEADER... LOOK TO LINDSAY

THE LINDSAY TELEPHONE SUPPLY CO.
360 East Highland Road, Northfield, Ohio
Telephone: IMperial 7-7181

INSPECTION SERVICE
"AT TIMBER TREATING PLANTS"
Of poles, crossarms, and preservative treatments. Analysis of wood preservatives. Consultation and specification writing.
A. W. WILLIAMS INSPECTION CO., INC.
MOBILE, ALABAMA
New York • St. Louis • Portland
Inspectors stationed throughout the U.S.A.

CABANISS-POGUE COMPANY
Consulting Engineers
Appraisals—Cost and Rate Studies
Financial Assistance
GRANT BLDG., ATLANTA, GEORGIA

CARL C. CRANE, INC.
Consulting Engineers
121 S. Pinckney St. Madison 1, Wis.
Telephone ALpine 6-0247

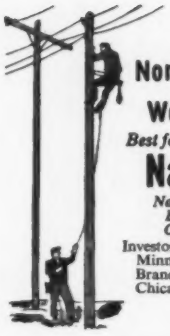
McGRATH ENGINEERING, INC.
Consulting Engineers
209 West 6th Street
TOPEKA, KANSAS
Telephone CE 2-2358

SLOAN, COOK & LOWE
CONSULTING ENGINEERS
Appraisals—Original Cost Studies
Plant, Traffic and Commercial Engineering
120 S. La Salle St.
Chicago 3, Ill. Tel.: FRanklin 2-5924

Telecommunication Consultants
P.O. BOX 6224, MOBILE, ALABAMA
TELEPHONE GR 7-7020 OR GA 6-7767
"Complete Engineering Services"

MURPHY ELECTRONIC RESEARCH DEVELOPMENT MANUFACTURE
ENGINEERING LABORATORIES, Inc.
4419 TULSA
HOUSTON 24, TEXAS
Write For FREE Literature

HARRIS-McBURNEY CO.
PUBLIC UTILITY CONSTRUCTION
A complete construction service for the telephone industry
Construction Crews — Designing
Station Installers — Appraisals & Reports
Cable Splicers — C. O. Installation
Underground Duct Sytems
Telephone ST 4-6126
P. O. Box 267 Jackson, Michigan



Northern white cedar
•
Western red cedar
Best for durability... poles from
National Pole
National Pole and Treating Division, Minnesota and Ontario Paper Company
Investors Building • Minneapolis 2, Minn. Telephone FEderal 8-8881.
Branch Office: Prudential Bldg., Chicago • Plant: Minneapolis.

ATLANTIC
Creosoting Co., Inc., 17 Battery Pl., N. Y. C.
PINE POLES
Creosote Oil or Pentachlorophenol
Boston, Mass. — Portsmouth, Va.
New York, N. Y. — Philadelphia, Pa.
Savannah, Ga.

POLES

B. J. Carney & Co., 100 N. 7th St., Minneapolis, Minn.—Western red cedar poles. Pentrex Butt Treated or Plain.

Cascade Pole Co., P.O. Box 743, Tacoma, Wash. — Creosoted Douglas Fir and Cedar Poles.

C. M. Christiansen Co. — Northern White Cedar Poles, Pentachlorophenol treated. Plant and Yards, Phelps, Wis.

Dierks Forests, Inc., Wood Preserving Division, 810 Whittington Ave., Hot Springs, Arkansas. Southern Pine select poles all sizes and lengths, pressure-treated, creosote or penta. Also creosote-2% penta mixture. Prompt shipment.

Eppinger & Russell Co., 80—8th Avenue, New York 11, N. Y.—Creosoted Poles and Cross Arms. Plants: Jacksonville, Fla., Norfolk, Va., Eddington, Pa.

International Creosoting and Construction Co., Galveston, Texas.—Creosoted Southern Yellow Pine Poles. Plants Beaumont and Texarkana, Texas.

International Paper Co., Wood Preserving Division — 926 Grand Avenue, Kansas City, Missouri—"LONG-BELL" pressure-treated Southern Pine and Douglas Fir Poles—Creosote or Penta.

Piedmont Wood Preserving Company —Creosoted and Creosote-Penta Treated Pine Poles. Plant, Augusta, Georgia. Yards, Virginia, West Virginia and Connecticut. Address inquiries to Box 1662, Spartanburg, S. C.

Texas Creosoting Company—512 Main Street, Orange, Texas—Creosoted Southern Yellow Pine and Douglas Fir Poles. Can also treat with "Penta."

POLES
CREOSOTED SOUTHERN YELLOW PINE
LOW RESIDUE COAL TAR DISTILLATE
"Truck Delivery Our Specialty"
Baker Wood Division, D. B. Frampton & Company
P.O. BOX 520 MARION, OHIO

POLES • CROSSARMS
RAIL or TRUCK DELIVERY
Pressure-treated to your specifications. 16 sales offices, 34 plants serving you. See Yellow Pages, write or call Pittsburgh EXpress 1-3300.
C-10
KOPPERS COMPANY, INC.
Wood Preserving Division
757 Koppers Bldg., Pittsburgh 19, Pa.

Professional Engineers - Contractors
Central Office Installation
Cable Splicers, Plant Crews, Installer Repairmen
HENKELS & McCOY
PHILADELPHIA
1800 N. Johnson St., Elkhart, Ind., Tel. CO 4-1121

FOR ALL OF YOUR CENTRAL OFFICE AND PBX INSTALLATIONS, MODIFICATIONS, AND ENLARGEMENTS, IT'S THE
T. E. I.
TELEPHONE ELECTRONICS INSTALLATION CORP.
2222 E. Thirtieth St., Erie, Pa.
MAY WE BE OF SERVICE TO YOU?

DAVIS
CONSTRUCTION COMPANY
UTILITY PLANT CONSTRUCTION
45 North Clark Street • Sullivan, Missouri

KILLOREN COMPANY
Construction crews—Installers
Cable Splicers
30 years experience
136 N. State St. Appleton, Wisconsin
REgent 3-5549

TUDOR AND YAGER, INC.
Telephone Construction
TIPTON, INDIANA
Phone OSborne 5-2267

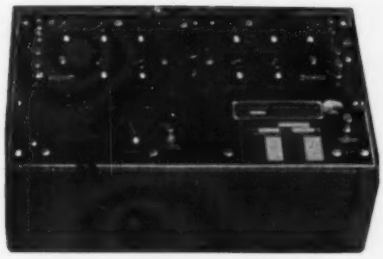
Whether a Winch Line Hook or a complete Line Body check your requirements with

UTILITY TOOL & BODY CO.
CLINTONVILLE, WISCONSIN
UT&BCo

VF REPEATERS (dry line) ($500 value) $100

- TRY AT OUR RISK -

Every sale has lead to reorders



12 to 18 DB gain
(2 or 4 wire)
115-230 VAC & 12 VDC building-out network & protection built-in weatherproof wood case removable for 19" rack mtg. Brand new....$100
Good used.... 75

- manual loaned free -

OA-8 W.E. VF REPEATERS (3-circuit)

7'x19" steel rack with 2-4 wire hybrid & composite telegraph set. New $300

VF RINGER, EE 101 (2-circuit) W.E. 20 cy-1000 cy-20 cy 115-230 VAC (also 12 VDC) $100

CARRIER, 3-channel+VF

W.E. CF1A (Sig. Corps)

Repeaters, for use with CF1a CF3A, new

W.E. C-Carrier Terminals

C-Carrier Repeaters

TEST BOARDS & EQUIPMENT

Brand new, W.E., Wire Chiefs'

Patch cords & plugs

Jacks & Mountings

Relay Racks

Bridges—L&N

Transmission Measuring Sets

Portable line Test sets

MDF PROTECTORS
Complete

W.E. #1435 W, 20 pr. $10 new
1268 A, 20 pr. 10 new
1269 A, 20 pr. 10 new
C50 A, 50 pr. 40 new
25 recond.
C52 A, 52 pr. 42 new
37 recond.
A.E. #675, 20 pr. 10 new
22 pr. 12 new

MDF VERTICALS, W.E. & Cook cable rack & fittings

W.E. Interior Terminals & Chambers protected & unprotected types

Raytheon Rectichargers - Rectifilters 24 Volt

Shipped On Approval
Satisfaction Guaranteed

Huge Savings on everything in our multi-million dollar stock.

Let us quote on your other needs

SWITCHBOARDS, manual

W.E. #12 (universal) new (also BD110)

W.E. #605 PBX new

W.E. #551A PBX rebuilt 20 to 60 line

W.E. #506 PBX (cordless) 7 to 12 line, rebuilt

Kellogg CB (universal) 1600 type Per spec #38008 (post war)

16 cord circuits (univ. per #4501-1, 5)

SL, 2 or 4 or 10 party ringing

#258 jacks and #25 lamp jacks wired to multiple cables (little wear)

Line & cut-off relays wired to term. on relay racks—also trunk & mag equip. power board, etc. (priced to move *now*)

Kellogg PBX K-100 (100 line) new & rebuilt

Kellogg PBX (Cordless) #1007 5x12, brand new.....$150
also some 5x20, new.....$200

Kellogg 200 line CB-LB Central Office, used 1 year (like new) $800

Stromberg-Carlson #106 PBX (80 line) like new.....$400

SWITCHBOARD PARTS
(all mfg.)

New & Good Used

Jack & Lamp Strips

Line & cut-off relays, trunk, etc.

Cord & plugs, lamps & caps

Lamps:

W.E. A-1, 24 volt, new.....$16 C
G.E. 24B, 24 volt, new..... 16 C
G.E. 18B, 18 volt, new..... 16 C
many others (same price)

The Telectric Co.

1218 VENICE BOULEVARD • **LOS ANGELES 6, CALIF.**

CLASSIFIED SECTION

Rates 15 cents per word payable in advance. Minimum charge $3.00 for 20 words or less. Classified advertisements must reach us 8 days before publication date.

FOR SALE

45—MURPHY ONE-MAN CABLE TESTER Model C, good condition, greatly reduced price. Write Box No. 4337, c/o TELEPHONY.

ONE MODEL K-5 DECIMONIC SUB-CYCLE. Like new. Write or call for more information. Luck Telephone Co., Luck, Wis. GReenwood 2-2925.

100 LEICH 901 WALL OR DESK magneto telephones all in good working condition — $10.00 each. FOB, Amery Telephone Co., Amery, Wis.

FACTORY REBUILT MODEL -B- LASHERS, with cases, used with 091 or 065 wire—General Machine Products $95.00 each. FOB Chicago. Limited supply. Independent Telephone Repair Co., 2137 W. 21st St., Chicago 8, Ill.

COMPLETE DIAL CENTRAL OFFICE. North Electric broadspan CX200 —fully equipped, 19 links, 10 toll trunks, 9 PBX lines, 3 paystations, 7 digit dialing, charger and batteries. Good condition—priced to sell. Contact: William McClusky, Citizens Telephone Co., Rock Creek, Ohio. Phone LOgan 3-3301.

FOUR-POSITION, KELLOGG JUNIOR MASTERBUILT common-battery switchboard, non-multiple, 40 Universal cord circuits, 10 toll-cord circuits, 440 lines equipped. Also terminal rack-400 Cook protectors-1100 cable pair capacity. All were new in 1940. Available after July 1960 conversion to dial. Write or call Zumbrota Telephone Co., Zumbrota, Minn.

FOR SALE

LEICH 901-wall or desk magneto telephones. Cleaned, tested and guaranteed, $16.50 each. As removed from service, no broken or missing parts, $15.00 each. Turtle Lake Tel. Co., Turtle Lake, Wis.

LEICH 200 LINE BOARD 180 lines equipped, also Automatic Electric board 50 lines. Both priced for quick sale. For additional information write Dixie Telephone Co., Claxton, Ga.

24 VOLT SWITCHBOARD LAMPS 10¢ each; 5,000 available packed 100 to a box. Signal Corps Wire Chief Test Sets type BE-70-P, new condition $25.00 FOB Electronicraft, Mt. Kisco, N. Y.

HIGHWAY CABLE REEL TRAILER—heavy duty, good condition —$750.00. Neale model D Spinner with chest and extra spool—$100.00. Morton Contracting Co., Box 11, Cherokee, Ia. Telephone CA 5-2647.

BRAND NEW COOK XB POLE TERMINALS, 16 pair, unprotected with 5 ft. cable stubs—@ $5.00 each. Stromberg #1543 Desk Sets, st. line. dial, coiled cords, like new—@ $18.30 each. Prices—FOB Chicago. Independent Telephone Repair Co., 2137 W. 21st St., Chicago 8, Ill.

FIVE 109B LOAD COIL CASES e/w 7 MF4 units—$371.26 each. One 108B Load Coil Cases e/w 13 MF11 units—$65.00 each. One 104AC Load Coil Cases e/w 32 5M4 units—$1,012 each. For further information write West Coast Telephone Co., P. O. Box 1003, Everett, Wash. Attention: Purchasing Agent.

FOR SALE

HANDSET TELEPHONES, magneto, self contained 75 each @ $15.00; Candlestick type with Bell boxes: 50 each—make offer. Can arrange to finance if purchased by telephone company. Empire Telephone Corp., Prattsburg, Steuben County, N. Y.

STROMBERG-CARLSON RELAY DIAL SWITCHBOARD — 100 lines equipped, 10 links, 4 trunks (on lines) E & M signaling, duplicate interrupters (A.C. motor driven), 20 party coded ringing, conversation timing, Cook #100 "A" main frame 2-verticals, Raytheon 6 amp charger, no batteries. Installed in 1948 and replaced with larger board in 1959. In storage at Blooming Prairie, Minnesota. Price $2,500 FOB Blooming Prairie. Minnesota Telephone Co., 530 Mobil Oil Building, Minneapolis 2, Minn.

TWO COMMON BATTERY BOARDS: 1—Automatic Electric 3-Position full multiple 48v, 400 lines equipped, 20 rural lines, 10 trunks—ringdown, 2 trunks—loop dial, 15 cord circuits per position, 6—Party Master Ringing Keys, superimposed ringing, can be wired for frequency. Cord circuits and line circuits relay rack mounted, 3 amp Raytheon charger, batteries good, MDF 460 protectors, 1100 pair cable termination. Price $150 FOB Wheaton, Minn. 1—Kellogg 2-Position non-multiple 24v, position 1, 200 lines equipped, 15 cord circuits. Position 2, 160 lines equipped, 15 cord circuits, 4 Party Ringing Keys on all cord circuits wired for superimposed ringing. Can be wired for frequency. 30 toll or ringdown lines, 3 amp Raytheon charger, batteries fair, MDF 360 protectors, 550 pair cable termination. Price $200 FOB Wheaton, Minn. Marshall County Telephone Co., 530 Mobil Oil Bldg., Minneapolis, Minn.

BATTERY ELIMINATORS AND BATTERY CHARGERS

48 Volt	6 Ampere	Charger or Eliminator (110 VAC Imput)
48 Volt	3 Ampere	Charger or Eliminator (110 VAC Imput)
24 Volt	3 Ampere	Charger (110 VAC Imput)
24 Volt	1 Ampere	Eliminator (110 VAC Imput)
48 Volt	6 Ampere	Charger (220 VAC Imput)
48 Volt	8 Ampere	Charger (220 VAC Imput)

(VERY GOOD USED CONDITION — TESTED)

BUCKEYE TELEPHONE & SUPPLY CO.

1250 KINNEAR RD. HUdson 8-0655 COLUMBUS 21, OHIO

ORDER FROM L. E. S. AND PAY LESS

CABLE SPLICING TOOLS & SUPPLIES
PROMPT DELIVERY FROM STOCK
Send for Bargain Stock List No. CS.

LINE EQUIPMENT SALES

46 W. Harrison St., Chicago 5, Ill.

YOUR DIALS

Reconditioned by Specialists

Exclusive Materials and Techniques Applied to All Makes and Types

DIAL HAVEN INC.

P. O. BOX 655, MONROE, N. Y.

Code 914 STory 3-2221

HELP WANTED

TELEPHONE EQUIPMENT SALES

Sales Applications Engineer with a minimum of five years' experience in the selling and applications of telephone systems and equipment to telephone companies and private users.

Typical customers would include independent telephone companies, railroads, airlines, offices and factories.

This opening will offer recognition, advancement and security to an applicant who is willing to progress and take advantage of this unique opportunity.

We welcome and will treat as confidential all inquiries concerning this position.

MANY COMPANY BENEFITS NEW YORK AREA

Send your résumé, including salary requirement, to:

MR. MARTIN G. WOLFERT
100 East 42nd St., Room 802
New York 17, N. Y.

NORTH AMERICAN PHILIPS COMPANY, INC.

NORELCO

DISTRICT MANAGER — for progressive Independent telephone company on the west coast. Must be experienced in plant, traffic and commercial operations. Reply sending a complete résumé to Box No. 4365, c/o TELEPHONY.

SWITCHMAN with good telephone background and experience in Relaymatic and step-by-step equipment. Reply to: Equipment Superintendent, Northeastern Telephone Corp., London, Ky.

MANAGER — REA co-operative. Serving 5,000 subscribers. Dial system consisting of eight Kellogg, two Leich and four Stromberg-Carlson exchanges. Administrative, technical, plant and commercial knowledge required. Submit application, experience, references and salary expected in application, prior March 1, 1960. Write, George T. Holman, Chariton Valley Telephone Corp., Bucklin, Mo.

MANAGER — for rural cooperative telephone system located in Wilkes County, N. C. presently serving 800 stations, all dial. Must have administrative ability to achieve and maintain efficient operations and develop sound expansion programs. Ability to hire, train and direct personnel in all phases of telephone operations. Technical telephone experience required. Permanent position carrying substantial opportunity for qualified person. Replies confidential. Please write C. M. Brown, Jr., President, Wilkes Telephone Membership Corp., Purlear, N. C.

Brand New POLE STEPS at fraction of reg. cost!

Standard, **Hubbard 7125**, 5/8" dia., 10" length—open hearth steel, fetter drive thread, hot dip galvanized. Manufactured to approved standards.

Intelligent, volume purchase makes extreme low prices possible on any quantity! Immediate delivery from our Los Angeles or Santa Ana stocks. Order now—or send request for quotations to:

Kimberly 2-9746

Power Unit Sales Co. **Dept. D, 2102 W. Chestnut St., Santa Ana, Calif.**

HELP WANTED

MANUFACTURER'S REPRESENTATIVES WANTED

By rapidly growing manufacturer of light-density multichannel FM radio equipment with features specifically tailored to requirements of telephone industry. Technical capabilities in field of point-to-point multiplexed radio and regular contact with Independent telephone companies a requisite.

For particulars, write
Box No. 4352, c/o TELEPHONY

CABLE SPLICERS • LINEMEN
STATION INSTALLERS
STEADY WORK, GOOD PAY
MIDWEST LOCATION
The Weikel Line Company, Inc.
FORT WAYNE, IND.

A LARGE EXPANDING TELEPHONE COMPANY ideally located in the Southeast has immediate openings for experienced Commercial Representatives and Business Office Supervisors. Salary commensurate with experience and qualifications. Please send résumé and photograph to Box No. 4369, c/o TELEPHONY.

CABLE SPLICERS, Station Installers, Equipment Installers, Linemen. Experienced men needed. Steady work, good pay. Henkels & McCoy, 1800 Johnson St., Elkhart, Indiana, or 6100 N. 20th St., Philadelphia, Pa.

CENTRAL OFFICE EQUIPMENT MAINTENANCE MEN—location northern California. Top pay and fringe benefits. Send complete résumé to the Assistant General Manager, Citizens Utilities Co., Box 1789, Redding, Calif.

EQUIPMENT ENGINEER — for progressive Independent telephone company on the west coast. Must be experienced in switching, carrier and microwave. Reply sending a complete résumé to Box No. 4366, c/o TELEPHONY.

HELP WANTED

CENTRAL OFFICE EQUIPMENT MAN. Please send full experience résumé. Millington Telephone Co., Inc., Millington, Tenn.

INSTALLER - REPAIRMAN. Good opportunity for experienced man, 6,000 station dial system. Please send full experience résumé. Millington Telephone Co., Inc., Millington, Tenn.

AMBITIOUS MEN qualified as Station Installers, Equipment Installers, Cable Splicers, Linemen. Work in Midwest. Harris-McBurney Company, Inc., P.O. Box 267, Jackson, Mich.

OUTSIDE PLANT ENGINEERS—Immediate overseas positions in the European Area. Must be experienced in design and initiation of specifications. Please send education and experience resume to National Scientific Laboratories, Inc., 2010 Massachusetts Ave., N. W., Washington 6, D. C. Attention: R. G. Whitmore.

WANTED TO BUY

WANTED ALL MAKES OLD TELEPHONES—our truck will pick up and pay you Cash on the spot. Telephone Co., Turtle Lake, Wis.

TELEPHONES—all types—any condition, candlesticks, wall sets, etc. Write advising quantities available. Our trucks will pick up. Reply to Box No. 3952, c/o TELEPHONY.

REPAIR SERVICE
Of Telephones, Dials, Operators' Head Sets
A.E. L965 Hand Test Tel.
W.E. 1011 Test Tel.
B. Y. DIAL SERVICE
411 WEST 22ND — HIGGINSVILLE, MO.
Workmanship Guaranteed • Speedy Service

CABLE SHEATH STRIPPER

N-2878

• HANDY • FAST • SAFE • EFFICIENT • EASY TO USE

Slits plastic or fabric covered cable. Rigid Phenolic Handle. Stainless steel saddle holds guide and blade in place. Groove guides and supports cable. 2 extra blades.

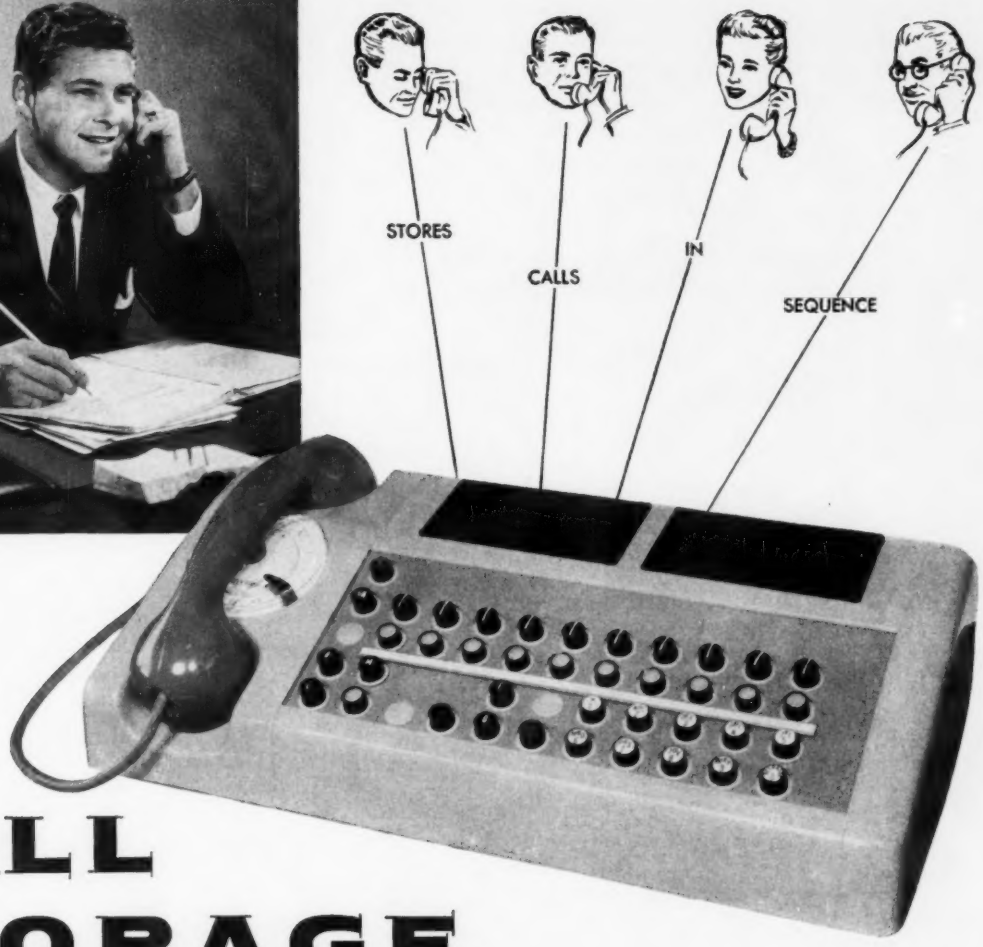
$7.30 each **IMMEDIATE DELIVERY**

P. K. NEUSES, INC.
511-19 N. Dwyer St., Arlington Heights, Ill.

Index to ADVERTISERS

	Page
Acme Electric Corporation	—
Acme Visible Records, Inc.	—
Airtronics International Corp.	—
Alphaduct Wire & Cable Co., The	—
Altec Lansing Corp.	—
Aluminum Company of America	—
Amchem Products, Inc.	51
American Chain & Cable Co., Inc. Page Steel & Wire Div.	61
American Electrical Heater Co.	—
American Steel & Wire Co.	—
American Telephone & Telegraph Co.	40-41
Anaconda Wire & Cable Co.	—
Ansonia Wire & Cable Co., The	—
Arrow Fastener Co., Inc.	54
Arps Corporation	—
Atlantic Creosoting Co., The	68
Auburn Machine Works, Inc.	—
Audio Development Company	—
Automatic Electric Sales Corp.	12-13, 36-37, 52-53
Avnet Electronics Corp.	—
Baker Wood Division	68
Barber Advertising Specialties, Walt	—
Bartlett Tree Experts	31
Bell & Co., J. A.	55
Bell Telephone Laboratories, Inc.	—
Benner-Nawman, Inc.	—
Bethlehem Steel Co.	39
Berry & Co., L. M.	18
Bohnsack Equipment Co.	—
British Insulated Callenders' Cables, Ltd.	—
Brown Mfg. Co.	—
Brown Wood Preserving Co.	64
Buchart Associates	—
Budelman Electronics Corporation	—
Buckeye Telephone & Supply Co.	70
Burgess-Manning Company	—
Burroughs Corp.	7
Butler Manufacturing Co.	—
B. Y. Dial Service	71
C&D Batteries, Inc.	—
Cabaniss-Pogue Co.	68
Cable Construction Co.	67
Cable Spinning Equipment Co.	—
Calculagraph Company	—
Cereske Co., William	—
Chance Co., A. B.	—
Charles Machine Works, Inc.	—
Chicopee Mills, Inc.	—
Cleveland Inst. of Electronics	—
Clifton Appraisal Company	—
Collins Radio Co.	—
Colorado Fuel & Iron Co., The	65
Commercial Cord Company, Inc.	48
Communication Equipment & Engineering Co.	66
Cook Electric Company	—
Copperweld Steel Co.	—
Crane Inc., Carl C.	68
Cushman Motor Works, Inc.	—
Dahl Co., Inc., George W.	—
Dampp-Chaser, Inc.	—
Davis Construction Co.	68
Davis, Inc., Archie	—
Dial Haven, Inc.	70
Diamond Expansion Bolt Co.	—
Dillon & Co., Inc., W. C.	—
Donnelley & Sons, R. R.	—
Duo-Safety Ladder Corp.	—
E. & C. Contracting Co.	67
Electric Specialty Co.	—
Everstick Anchor Co.	—
Exide Industrial Division— The Electric Storage Battery Co.	33
Fitchburg Engineering Corporation	—
Foley Construction Co., Robert E.	67
Ford Motor Company, The	—
General Cable Corporation	—
General Insulated Wire Works	—
General Machine Products Co., Inc.	—
General Telephone Directory Co.	—
Gould-National Batteries, Inc.	—
Graybar Electric Co.	—
Haley & Co., R. G.	—
Hallamore Electronics Co.	—
Harris-McBurney Company	68
Hayes Aircraft Corporation	8
Henkels & McCoy	68
Highway Trailer Company	—
Hirsch Organization Inc., Gustav.	—
Holan Corp.	—
Indiana Steel & Wire Co.	62
Irwin Auger Bit Co.	—
Johns-Manville	—
Katolight Corporation	—
Kearney Co., Jas. J.	—
Kellogg Switchboard & Supply Co.	4-5
Kennecott Wire & Cable Div.	—
Keystone Steel & Wire Co.	16
Killoren Company	68
Klein & Sons, Mathias	—
Kohler Co.	—
Koiled Kords, Inc.	—
Koppers Co., Inc. Wood Preserving Div.	68
Leich Sales Corporation	10-11
Lindsay Telephone Supply Co.	67
Line Equipment Sales	70
Lorain Products Corp., The	—
Magnolia Chemical Co., Inc.	—
McCabe-Powers Body Company	—
McGrath Engineering, Inc.	68
Monsanto Chemical Co.	—
Morrison-Pelsue Co.	—
Mullen Construction Co.	—
Murphy Engineering Laboratories	68
Natco Corporation	—
National Pole & Treating Div.	68
National Standard Co.	—
National Telephone Supply Co.	Back Cover
Neubauer Mfg. Co.	—
Neuses, Inc., P. K.	71
North Electric Company	14-15
Okonite Company, The	—
Onan & Sons, D. W.	—
Orangeburg Manufacturing Co., Inc. Div. of The Flintkote Co.	—
Osmose Wood Preserving Co.	46
Owens-Illinois	—
Page & Hill, Inc.	49
Page Steel & Wire Div. American Chain & Cable Co.	61
Panhandle Electric Sales, Inc.	63
Panoramic Radio Products, Inc.	55
Penta Wood Products, Inc.	—
Phelps Dodge Copper Products Corp.	—
Philco Corporation Gov't & Industrial Div.	—
Plastic Wire & Cable Corp.	47
Plastimayd Corporation	—
Pole Sprayers, Inc.	46
Porter, Inc., H. K.	—
Power Unit Sales Co.	71
Preformed Line Products Co.	56-57
Puregas Equipment Corp.	43
Radio Frequency Labs, Inc.	—
Railway Communications, Inc.	—
Ramset Fastening System	—
Rawlplug Company, The	45
Raytheon Company	—
Recordak Corp.	—
Reichhold Chemicals, Inc.	59
Reliable Electric Company	9
Republic Creosoting Company	—
Rex Corporation, The	—
Rohn Manufacturing Co.	58
Rolatape, Inc.	44
Runzel Cord & Wire Co.	—
S & G Manufacturing Co.	47
Schauer Mfg. Co.	—
Seymour Smith & Son	—
Sherron Metallic Corp.	—
Sierra Electronics Corp.	65
Sloan, Cook & Lowe Co.	68
Stahl Metal Products, Inc.	—
Stainless, Inc.	60
Stampings, Inc.	—
Stewart Bros.	—
Stromberg-Carlson Co.	2-3
Studebaker Packard Corporation	—
Superior Cable Corporation	—
Suttle Equipment Corporation	17
Taylor-Colquitt Co., The	61
Telecommunications Consultants	68
Telectric Co.	69
T.E.I. Corp.	68
Tel-E-Lect Products, Inc.	—
Tele-Muff Co.	—
Teletype Corporation	35
Tele-Wire Supply Co., Inc.	—
Templeton, Kenly & Co.	—
Thornhill Publishing Co.	66
Transandean Associates, Inc.	—
Truck Equipment Company	—
Tudor & Yager, Inc.	68
United Electric Controls Co.	—
U. S. Industrial Chemicals Co.	—
United States Instrument Corp.	73
United States Motors Corp.	50
United States Steel Corp. American Steel & Wire Co.	—
Creosote Division	—
Universal Controls Corp.	—
Utility Service Co., Inc.	—
Utility Tool & Body Co.	68
Warren Mfg. Co., The	—
Weikel Line Company	71
Western Electric Co.	—
Whitney-Blake Co.	—
Williams Inspection Co., Inc., A. W.	68
Winders & Geist, Inc.	—
Wiremold Co., The	—
Wyoming Valley Equipment Div.	—
York-Hoover Corporation	—

WESTERN REPRESENTATIVE:
McDonald-Thompson, 625 Market St., San Francisco, Cal.; 3727 W. Sixth St., Los Angeles; 620 Sherman St., Denver, Colo.; National Bldg., Seattle, Wash.; 3217 Montrose Blvd., Houston, Tex.; 2727 Oak Lawn Ave., Dallas 19, Tex.; 404 Times Bldg., Portland 4, Oregon.



CALL STORAGE

PBX

by USI

No longer are the customers or prospects of commercial subscribers greeted with a "busy" rebuttal. Calling parties hear only a polite "Would you care to wait a moment?" from the attendant as she presses a button that puts the incoming call "next in line."

Subscribers praise this feature that allows them to put through incoming calls to a busy station for "storage." Stored calls are automatically connected and rung in sequence when the called extension user replaces his receiver. A lamp signal on the attendant's set glows when the stored call is answered by the extension user.

®USI CORP.

Call, wire or write us today for a cost-free analysis of your communications problem

BOX 1191 . . . . . PHONE 3-5153

UNITED STATES INSTRUMENT CORPORATION

CHARLOTTESVILLE, VIRGINIA

Nicopress insulated splicing sleeves for rural and urban multi-distribution wires

With this Nicopress D17 Tool and Nicopress Insulated Splicing Sleeves there is no need to tape splices to keep out moisture. The plastic sleeve within the outer copper jacket fully insulates the inner conductivity splice and seals the splice from air and moisture.

Nicopress Sleeves are available in three sizes for multi-distribution wire: 19 AWG, 22 AWG, and 24 AWG. One Nicopress D17 Splicing Tool fits all three sleeves.

The National Telephone Supply Company

5100 SUPERIOR AVENUE • CLEVELAND 3, OHIO

Canadian Mfr.—H. SLATER CO., LTD., HAMILTON, ONT., CANADA

Export Distributor—INTERNATIONAL STANDARD ELECTRIC CORP., NEW YORK, N. Y.

Nicopress is the Registered Trade Mark of The National Telephone Supply Company